

S. A. & S., Ltd.—200—31/7/1908. F.

C. P. ¹⁰⁸
1908-1909

THE HERTFORDSHIRE COUNTY COUNCIL.

TENTH

ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

FOR

HERTFORDSHIRE

FOR THE YEAR 1907.

BY

FRANCIS E. FREMANTLE,

M.A., M.B., M.CH. (OXON), M.R.C.P., F.R.C.S., D.P.H.,

COUNTY MEDICAL OFFICER OF HEALTH.

Including the SECOND ANNUAL REPORT of the

LADY INSPECTOR OF MIDWIVES.

PREPARED BY DIRECTION OF THE COUNTY COUNCIL FOR
THE COUNTY OF HERTFORD.

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To the Chairman and Members of the Hertfordshire County Council.

MY LORDS AND GENTLEMEN,

I have the honour of presenting to you my Annual Report on the Public Health of the County in 1907, the seventh since my appointment, the tenth you have received.

In deference to the wishes of the Committee, it has been considerably abbreviated, especially in historical and explanatory matter. It did not seem advisable to reduce the record of recent facts or consequent deductions, and matters awaiting consideration are, as usual, dealt with in full.

Being presented to a non-medical body of men, this report does not purport to be a scientific but a practical treatise. With the clerical assistance, however, which you have now provided, it should be possible for me to keep my fingers on the sanitary pulse of the County by frequent inspection, instead of occupying myself entirely with office-work. This will be materially facilitated by the work under the Education Committee to which I am in future to give half my time. The organisation adopted by you for the medical inspection of schools will bring me into direct relation with every Medical Officer of Health in the County, and from the cordial relationship at present subsisting between the District Officials and myself, I believe that our co-operation may be of mutual service to the Councils whom we serve, and of advantage to the Public Health of the County, which is our common care.

I would suggest that Local Authorities be asked to direct their officials to consult with your officials from the outset on all works for which they may require sanction for a loan and the support of the County Council in their application. Under present custom it is often difficult to give that public support to the proposals of a Local Authority which the County Council would wish given.

My thanks are again due to Dr. Tatham, of the General Register Office, and to Miss E. Huggett, of Guy's Hospital, for assistance in the preparation of this Report; and to Dr. Gerard C. Taylor for again acting on my behalf last year. The County Council of Berkshire has now secured the whole of Dr. Taylor's services, to the loss of the Finchley Council.

I venture more especially to draw attention to the following subjects in this Report :—

Result of procedure for ensuring early publication of Annual Reports (p. 9).

Infantile Mortality and “The Notification of Births Act, 1907” (pp. 23, 29, 146).

Reduced Birth-rate (p. 14).

Increased Cancer Death-rate (pp. 15–29).

Epidemic Death-rate (p. 31); Notification through the Schools and early closure (pp. 33–40).

Scarlet Fever; Need of prompt notification and isolation of original case (p. 43).

Diphtheria: Provision of Antitoxin; Bacteriological Examination and early recognition, and School Notification of doubtful cases (p. 44).

Isolation-Hospitals: General Policy (p. 49); Smallpox (p. 51); Baldock and Hitchin (p. 53); Barnet (p. 54); Cheshunt (p. 58); Harpenden and St. Albans (p. 59); and Hemel Hempstead (p. 60); Disinfection (p. 63).

Water-Supply: “Metropolitan Water Board (Various Powers) Act, 1907” (p. 67); Baldock (p. 69); Barnet (p. 69); Harpenden (p. 70); and Rickmansworth (p. 71) Urban; Ashwell (p. 73); Buntingford (p. 74); Hemel Hempstead (p. 75); Hertford (p. 75); and Hitchin (p. 76); Rural (pp. 69–76).

Rivers Pollution: Standard of Effluent (p. 81); Complaints remedied (p. 83).

Drainage and Sewage-Disposal: Baldock; Bishop’s Stortford; Bushey; Cheshunt; East Barnet Valley; Harpenden; Hitchin; Hoddesdon; Sawbridgeworth; Stevenage; and Ware Urban; Barnet (Shenley, Boreham Wood); Berkhampstead (Long Marstone); Buntingford; Hatfield (Little Heath); Hemel Hempstead (Markyate Street); Hertford; Hitchin (Codicote, Ickleford, and Weston); and Watford (Chorleywood) Rural (pp. 85–97).

Disposal of House-Refuse: Berkhampstead; Cheshunt; and Tring Urban; Barnet; Hemel Hempstead; St. Albans; and Welwyn Rural (pp. 99–102).

Housing: “Housing, Town Planning, etc., Bill, 1908” (p. 103); Cheshunt (p. 104); Letchworth, First Garden City—Cheap Housing (p. 108).

Milk-Supply: Baldock; Hitchin; Stevenage; and Watford Urban; Barnet and Hatfield Rural; Conclusion (pp. 116–122).

Slaughterhouses: Hitchin Rural (Letchworth) (p. 123).

School Health (p. 136).

Midwives, Supply of, and County Nursing Association (p. 137).

I have to thank the members and officials of the County Council, and more especially those of the District and Parish Councils’ Committee, for their continued courtesy, individual and collective, and for their continued help in the often difficult and always responsible work which it is my privilege to undertake.

I am, my Lords and Gentlemen,

Your obedient Servant,

FRANCIS FREMANTLE,

GUY’S HOSPITAL,

County Medical Officer of Health.

4th June, 1908.

INTRODUCTION.

EVERY Medical Officer of Health is obliged annually to furnish his Council with a report for the year, and to send duplicate copies of that and of any special report he may make, including advice as to school-closure, to the County Council and to the Local Government Board, the supreme sanitary authority of the United Kingdom. It is on these District Reports for the year 1907 that this County report is based. It sums up for the whole County the facts and figures thus given; and by the use of the census reports for 1891 and 1901; of the annual reports for London and the great towns; of the Registrar-General's annual report for 1906, and annual summary for 1907; of Reports of Royal Commissions, and of sundry other sources of information, the sanitary state of the County is presented to the lay reader in its true relation to the health of the country at large. The early presentation of the Report this year, not yet sufficiently early for its purpose, prevents a comparison being given with the figures for other counties, except for Durham, whose County Medical Officer kindly forwarded a copy of his chief statistics as early as January. No other English county has yet issued its Annual Report for 1907.

Throughout the report Urban Districts are printed before Rural Districts; and Districts are arranged and numbered in alphabetical order throughout. All tables of figures are now incorporated into the text, except for that giving the Chief Statistics of each District, printed on a flyleaf at the end.

The County Medical Officer of Health will be glad to receive suggestions with a view to future reports, to assist District Medical Officers of Health in any way that is in his power, and to give what help he can by personal inspection or in writing to District Councils or other bodies or individuals in the County that may desire his advice.

Action taken as the result of the Report for 1906.

Hitchin Hospital (see page 53).—A letter was written to the Local Government Board drawing their attention to the fact that nothing was being done. No reply has been received. The matter is therefore at a complete deadlock.

Barnet Hospital (see page 54).—The Hospital Committee are proceeding with the erection of a temporary hospital and propose to pay for the same out of current account.

Harpenden Sewage (see page 88).—Mr. Fawcett, one of the Local Government Board Inspectors, held a Local Inquiry at Harpenden in October of last year, and on the 4th December, 1907, the Local Government Board wrote to the Urban District Council that they were satisfied that the Urban District Council had made default in providing sufficient sewers for this district, but that before making a formal Order to that effect under Section 299 the Board were willing to allow the Council a reasonable time to prepare a scheme for submission to the Board. The Urban District Council, on the 13th January, passed a resolution that they would carry out a drainage scheme, and would at once instruct a competent Surveyor to prepare a scheme, and would submit the same to the Board. The scheme is being prepared.

Bushey Sewage ; Long Marstone ; Shenley ; Cheshunt ; Sawbridgeworth (see pages 86, 93, 92, 91).—Inquiries for loans for sewage works have been held by the Local Government Board in these cases, and attended by the County Officers.

Hatfield Rural District ; Lemsford Sewage (see page 94).—Proceedings have been taken by the Lee Conservancy Board against the Hatfield Rural District Council in respect of a pollution at Lemsford. When the matter first came before the Hatfield Bench an adjournment was granted to enable the Hatfield Rural District Council to remedy the defect. Ultimately purification works were carried out, and on the 18th May, 1908, the Hatfield Bench decided to dismiss the summons, but ordered the District Council to pay £5 costs.

SANITARY AUTHORITIES IN HERTFORDSHIRE.

SUPERVISING AUTHORITY :

THE HERTFORDSHIRE COUNTY COUNCIL ACTING THROUGH ITS
EXECUTIVE :

THE DISTRICT AND PARISH COUNCILS COMMITTEE.

There is no limit to the number of this Committee.

It is charged with considering and reporting to the County Council on all its duties concerning the public health. Quorum, six. Its constitution for 1908 is as follows :—

Baker, H. W. Clinton.	*Hine, N. J.
*Barnard, E. B., M.P.	Horn, W. J.
Barnard, John.	Longman, A. H.
*Benskin, J. C.	‡Marchand, I. H. A.
*‡Boyes, W. Osborn, LL.D.	Marnham, A.
Burchell-Herne, Rev. H. F. H.	* † ‡Pank, John L. (Chairman).
Carr, Richardson.	Pearce, Joseph.
Clarendon, The Right Hon. the Earl of, G.C.B., G.C.V.O.	Porter, F. C.
Cooper, R. A.	Reynolds, J.
Craufurd, H. R. G.	Rutherford, D. C.
Davis, E. R.	Smith, Abel H., M.P.
Evans, Lewis.	Symons, J. S.
Foster, M. H.	*Toulmin, H. J.
Gilling, J. F.	Wells, A. Collings.
Grimwood, T. R.	Whately, G. L.
Halsey, The Right Hon. T. F.	*Woolrych, W. R.
	Worssam, H. J.

Those marked (*) are members of the Sub-Committee as to County Medical Officer of Health's Report.

† Representative on Committee of Selection.

‡ Committee under Section 8 (3) of "The Midwives' Act, 1902."

COUNTY MEDICAL OFFICER OF HEALTH :

Fremantle, Francis E., M.A., M.B., M.Ch. (Oxon), M.R.C.P., F.R.C.S.,
D.P.H., The College, Guy's Hospital, London, S.E.

COUNTY INSPECTOR OF MIDWIVES :

Burnside, Miss E. M., Certified Midwife by Examination, Hertingfordbury,
near Hertford.

LOCAL AUTHORITIES.

<i>Urban District and Borough Councils. Clerks.</i>				<i>District Medical Officers of Health.</i>			
1	Baldock	...	...	C. J. Veasey.	F. W. Langston Day.
2	Barnet	...	...	H. W. Poole.	* William Gruggen, D.P.H.
3	Berkhampstead	...	...	T. Penny.	"
4	Bishop's Stortford	...	...	Thomas Swatheridge.	* R. A. Dunn, M.D., D.Hy.
5	Bushey	...	...	John Wilson.	* William Gruggen, D.P.H.
6	Cheshunt	...	...	A. C. Lee.	Walter F. Clark, D.P.H.
7	East Barnet Valley	...	...	G. D. Byfield.	Walter Roughton, F.R.C.S., D.P.H.
8	Harpenden	...	...	C. S. Tuckey.	Hugh Fraser, M.B., C.M.
9	Hemel Hempstead Borough	...	...	L. Smeathman.	* William Gruggen, D.P.H.
10	Hertford Borough	...	...	T. J. Sworder.	* R. A. Dunn, M.D., D.Hy.
11	Hitchin	...	...	W. O. Times.	F. W. Langston Day.
12	Hoddesdon	...	...	P. R. Longmore.	* R. A. Dunn, M.D., D.Hy.
13	Rickmansworth	...	...	H. Lomas.	Mark Sharman, M.B., C.M., D.P.H.
14	Royston	...	...	H. F. J. Banham.	* B. Anningson, M.D., D.P.H.
15	St. Albans Corporation	...	...	A. H. Debenham.	* J. Morison, M.D., D.P.H.
16	Sawbridgeworth	...	...	W. Morris.	Ethelbert Collins.
17	Stevenage	...	...	W. O. Times.	Peter R. Tarbet.
18	Tring...	...	...	A. W. Vaisey.	* William Gruggen, D.P.H.
19	Ware...	...	...	G. H. Gisby.	* R. A. Dunn, M.D., D.Hy.
20	Watford	...	...	H. M. Turner.	A. King, M.B., C.M., D.P.H.
 <i>Rural District Councils.</i>				 <i>Clerks.</i>		 <i>District Medical Officers of Health.</i>	
1	Ashwell	A. Sharpe,	* B. Anningson, M.D., D.P.H.		
2	Barnet	G. D. Byfield.	* William Gruggen, D.P.H.		
3	Berkhampstead	A. W. Vaisey.	"		
4	Buntingford	J. Chalmers-Hunt.	* R. A. Dunn, M.D., D.Hy.		
5	Hadham	Alfred G. Gwynn.	"		
6	Hatfield	J. B. Dunham.	Lovell Drage, M.D. (Oxon), D.P.H.		
7	Hemel Hempstead	L. Smeathman.	* William Gruggen, D.P.H.		
8	Hertford	T. J. Sworder.	* R. A. Dunn, M.D., D.Hy.		
9	Hitchin	A. E. Passingham.	F. W. Langston Day.		
10	St. Albans	R. W. Brabant.	H. E. May, M.B., B.C.		
11	Ware...	G. H. Gisby.	* R. A. Dunn, M.D., D.Hy.		
12	Watford	H. M. Turner.	* William Gruggen, D.P.H.		
13	Welwyn	T. J. Sworder.	"		

* Officers only engaged in Public Health work.

For Financial Aspect of Districts, see Table 33, page 134.

DATE OF RECEIPT OF ANNUAL REPORTS.

<i>District.</i>	<i>Date.</i>
	1908.
East Barnet Valley Urban	January 29
Stevenage Urban	February 1
Hatfield Rural	February 2
Cheshunt Urban	February 6
St. Albans Rural	February 19
St. Albans City	March 4
Royston Urban	March 9
Baldock Urban	March 17
Rickmansworth Urban	March 19
Middlesex and (South) Herts Combined (10 Districts)	March 30
Ashwell Rural	April 9
Watford Urban	April 10
East Herts and Essex Combined (8 Districts)	April 18 March 14
Harpenden Urban	April 18
Sawbridgeworth Urban	April 19
Hitchin Rural	April 22
Hitchin Urban	April 28

THE PUBLIC HEALTH OF THE COUNTY.

1907.

TABLE I.—STATISTICAL SUMMARY

YEAR.	Population estimated to middle of each year, except 1901, for which Census returns are given.	Births.		Deaths under one year of age.	
		Number.	Rate.*	Number.	Rate per 1,000 Births registered.
1	2	3	4	5	6
Urban.					
1899	154,052	3849	24·9	504	130·8
1900	157,026	3834	24·4	456	118·9
1901	154,888	4008	25·9	433	108
1902	159,774	3879	24·3	368	94·9
1903	162,439	4095	25·2	342	83·5
1904	166,165	4087	24·6	445	103·9
1905	170,488	4134	24·2	371	89·7
1906	178,343	4252	23·8	465	109·4
Averages for 8 years	162,897	4017	24·6	423	105·3
1907	182,388	4186	23·0	327	78·1
Rural.					
1899	103,859	2316	22·3	139	60
1900	105,434	2220	21	224	100·9
1901	104,923	2281	21·7	218	95·6
1902	103,901	2265	21·8	203	89·6
1903	104,430	2367	22·6	200	84·5
1904	104,862	2375	22·6	241	101·5
1905	104,826	2279	21·3	193	84·7
1906	100,008	2276	22·7	244	107·3
Averages for 8 years	104,030	2297	22·0	208	90·5
1907	100,448	2310	23·0	192	83·1

* Rates calculated per 1,000 of estimated population.

The following table gives a summary of statistics as to the chief factors in an estimate of the public health, respectively in the 20 Urban and in the 13 Rural Districts for the last seven years.

The chief statistics concerning the separate health of the 33 Districts are printed in series on a flyleaf at the end of the Report.

concerning *Urban* and *Rural* Districts.

Deaths at all ages, registered in the County.		Deaths in Public Institutions.	Deaths of Non- residents registered in the County.	Deaths of Residents registered beyond the County.	Deaths at all ages. Nett.		YEAR.
Number.	Rate.*				Number.	Rate.*	
7	8	9	10	11	12	13	
2257	14·6	...	...	...	...	...	Urban. 1899
2353	15	408	275	45	2123	13·5	1900
2184	14·1	404	226	75	2033	13·3	1901
2172	13·6	394	219	89	2042	12·8	1902
1993	12·3	387	208	97	1882	11·6	1903
2264	13·6	481	225	79	2118	12·7	1904
2123	12·4	396	229	104	1994	11·9	1905
2278	12·8	488	283	132	2127	11·9	1906
2203	13·5	422	238	88	2045	12·5	Aver. for 7 years.
2286	12·5	508	275	137	2148	11·8	
1313	12·6	...	...	...	...	...	Rural. 1899
1299	12·3	416	363	76	1012	9·6	1900
1350	12·9	260	215	75	1210	11·5	1901
1349	13	227	186	105	1268	12·2	1902
1288	12·3	239	202	111	1197	11·5	1903
1387	13·2	245	216	105	1276	12·2	1904
1307	12·5	231	201	119	1225	11·7	1905
1441	14·4	346	310	157	1288	12·8	1906
1342	12·9	280	242	107	1210	11·6	Aver. for 7 years.
1422	14·2	377	336	152	1238	12·1	

Column 12 is the sum of columns 7 and 11, less column 10, and represents deaths of all inhabitants of the County, wherever occurring.

POPULATION AND ACREAGE.

(For each District see flyleaf at end.)

TABLE 2.	Acreage (exclusive of water).	POPULATION.		
		Census 1891.	Census 1901.*	Estimate 1907.
Urban Districts ...	46,714	125,684	155,150	182,388
Rural Districts ...	356,142	100,903	103,273	100,448
County	402,856†	226,587	258,423	282,836
<i>England and Wales</i>	<i>37,326,795</i>	<i>29,002,525</i>	<i>32,527,843</i>	<i>34,945,600</i>

* Report of 1901 Census, County of Hertford; Eyre & Spottiswoode, 1s. 1d.

† In addition to this the County contains 1,662 acres covered by water, giving a gross acreage of 404,518, including water.

PERCENTAGE INCREASE IN POPULATION.

TABLE 3.	1891-1901, by Census.	1906-7, by Estimate.
Urban Districts	+23·4	+2·26
Rural Districts	+ 2·3	+ ·44
County	+14·1	+1·61
<i>England and Wales</i> ...	<i>+12·2</i>	<i>+1·15</i>

These estimated populations for 1907 are arrived at by various methods. That of the Registrar-General is, by comparison of the Census-returns for 1st April, 1891 and 1901, to determine the rate of increase during that decade, and to suppose the same rate of increase to have continued for six and a quarter years to the middle of 1907.

A large error arises, however, through new tendencies to migration. Motor-cars, the Barnet and Waltham tramcars from London, existing railways, and before long the proposed electric railway from Euston to Watford, and the new Great Northern through Enfield and Hertford to Stevenage, are all giving effect to the growing tendency towards country or suburban residence.

Latterly, however, the movement has taken another turn of far greater significance in the emigration from London of factories, as shown in Herts by the growth of Watford from 29,000 to 38,000 since the last census, and of the First Garden City at Letchworth to nearly 6,000 in four years. The latter has not been allowed for in the official estimates on which this Report is based. Its population to the middle of 1907 is reckoned at 5,000, as compared with 450 at the census. The more correct figure for Hitchin Rural District would therefore be 16,667; making the Rural total accordingly up to 104,998; and 287,386 for the County. This emigration was commented on at the annual meeting of the Great Eastern Railway, when the Chairman said he was glad to state that during the past half-year four factories had moved into their district in response to their invitation. He thought it right to mention that they had still over 200 sites in different parts of the system which they considered favourable and available for factory purposes.

COUNTY BIRTH-RATE.

(For individual Districts see flyleaf at end.)

TABLE 4.	Rate, 1902.*	Rate, 1903.*	Rate, 1904.*	Rate, 1905.*	Rate, 1906.*	Rate, 1907.*	Number of Births, 1907.
Urban Districts ...	24·27	25·21	24·59	24·25	23·8	23·0	4186
Rural Districts ...	21·7	21·80	22·65	21·74	22·7	23·0	2310
County ...	24·2	23·30	24·11	23·29	23·45	23·0	6496
<i>England & Wales</i> ...	28·6	28·4	27·9	27·2	27·0	26·3	917,636

* These and all other rates in this report, except where otherwise stated, are calculated per 1,000 of estimated population in 1907.

With these may be compared the birth-rate of Rural England (England and Wales less 218 towns with population of over 20,000), 25·6; London, 26·7; Glasgow, 28·3; Dublin, 31·2; 76 great towns (with populations of over 50,000), 27·0; certain Colonial and foreign cities, from Rotterdam, 33·5, and Trieste, Moscow, and St. Petersburg, over 30·0, down to Paris, 18·6, and Brussels, 17·6. The only county whose statistics for 1907 are yet available, that of Durham, had a birth-rate of 34·8.

Table 1 shows the average birth-rates of the last eight years to have been 24·6 in Urban and 22·0 in Rural Districts.

The birth-rate, then, in Hertfordshire shows a general tendency to decline, and compares unfavourably with that of Rural England,—23·0 against 25·6, or with that of England and Wales, 26·3. Hertfordshire, therefore, is doing less than other counties to perpetuate the national stock.

In the Urban Districts the rate varies from 18·2 (Berkhampstead) to 28·8 (Stevenage), in the Rural from 18·1 (Watford) to 29·8 (St. Albans).

During the past thirty years 15 per cent. of the decline in the nett birth-rate is due to the decrease in the proportion of married women in the female population of conceptive ages; over 7 per cent. is due to the decrease of illegitimacy. With regard to the remaining 78 per cent. there can be little doubt that, although partly due to a later age at marriage, much of it is due to deliberate restriction of child-bearing. This is obviously a grave peril to any State, above all to an Empire in such need of population as our own.

COUNTY DEATH-RATE.

(For individual Districts see flyleaf at end.)

TABLE 5.	Rate,* 1902.	Rate,* 1903.	Rate,* 1904.	Rate,* 1905.	Rate,* 1906.	Rate,* 1907.	Number of Deaths, 1907.
Urban Districts	12·79	11·58	12·75	11·69	11·93	11·77	2,148
Rural Districts ...	12·20	11·46	12·17	11·69	12·88	12·35	1,238
County	12·55	11·54	12·66	11·69	12·27	11·98	3,386
<i>England & Wales</i>	<i>16·2</i>	<i>15·4</i>	<i>16·2</i>	<i>15·2</i>	<i>15·4</i>	<i>15·0</i>	<i>524,311</i>

The deaths here given for 1907 are all those of Hertfordshire residents, whether registered within or outside the county. Deaths of non-residents occurring in the Leavesden and other Asylums, the Workhouses, or elsewhere in the County are not included.

In the Urban Districts the rate varied from 8·7 (Harpenden) to 21·8 (Baldock); in the Rural from 10·4 (Watford) to 15·4 (Ashwell). Watford, our biggest town, has a low rate of 11·3.

The total number of deaths for Hertfordshire is 3,386—30 less than in 1906—the chief causes in the decrease being diarrhœa 155 to 35, premature birth 161 to 107, and “all other causes” 1,298 to 1,231, while phthisis, bronchitis, pneumonia, and cancer showed increases of 13, 81, 36, and 53 respectively.

The wet weather will account for most of these variations; but the figures for cancer and premature birth are both surprising. One is tempted to connect the latter to the direct and indirect effect of the supervision of midwives.

The death-rate for the County in 1898 and in subsequent years was 14·0, 13·8, 13·9, 12·5, 12·55, 11·54, 12·66, 11·69, 12·27, 11·98. For the decades 1881–1890 and 1891–1900, the average death-rates in Herts were 16·89 and 15·6. This fall is remarkable.

The corresponding figures for 1907 were, for Rural England 14·7, 76 great towns 15·4, 142 smaller towns 14·5, London 15·2, Glasgow 18·5, and Dublin 24·7, and for certain foreign and Colonial towns rates from 11 and 12 in Sydney and Melbourne to 24·7 in St. Petersburg and 27·5 in Moscow. It is curious how high rates of birth and death go together, and low rates go together, in the same locality. The death-rate for County Durham is 17·0.

CAUSES OF DEATH.	DEATHS IN ALL URBAN DISTRICTS AT SUBJOINED AGES.						
	All ages.	Under 1.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and up-wards.
1 Smallpox ... ..	...	...	...	...	...	...	...
2 Measles	28	5	17	6	...	...	...
3 Scarlet Fever... ..	15	...	3	5	4	3	...
4 Whooping Cough	31	11	19	1	...	...	...
5 Diphtheria and Mem- branous Croup	23	...	11	11	...	1	...
6 Croup	4	...	3	1	...	..	...
7 Enteric and other con- tinued Fever	3	...	...	...	1	2	..
8 Epidemic Influenza	53	...	2	1	1	24	25
9 Diarrhœa	24	19	3	...	...	...	2
10 Enteritis	23	4	5	1	3	5	5
11 Puerperal Fever	2	...	...	...	...	2	...
12 Erysipelas ... ..	...	...	...	...	...	...	...
13 Other Septic Diseases	15	2	2	1	...	9	1
14 Phthisis	151	...	7	2	25	108	7
15 Other Tuberculous Diseases	59	8	19	11	4	14	3
16 Cancer or malignant disease	205	...	2	1	2	100	100
17 Bronchitis	216	43	26	1	4	29	113
18 Pneumonia	121	24	22	1	3	35	36
19 Pleurisy	3	...	...	...	..	2	1
20 Other Diseases of Respiratory Organs	29	5	12	2	...	3	7
21 Alcoholism and Cirrhosis of Liver	30	...	...	...	...	20	10
22 Venereal Diseases	1	...	...	...	...	1	...
23 Premature Birth	65	65	...	...	...	...	...
24 Diseases and Accidents of Parturition	12	3	1	...	1	7	...
25 Heart Diseases	232	1	3	3	10	96	119
26 Accidents	58	4	8	7	6	24	9
27 Suicides	15	...	...	...	...	12	3
28 All other causes ..	731	133	32	15	10	195	346
All causes	2148	327	197	70	73	684	797

DEATHS IN EACH DISTRICT (AT ALL AGES).

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Causes of Death.
Baldock.	Barnet.	Berkhampstead.	Bishop's Stortford.	Bushey.	Cheshunt.	E. Barnet Valley.	Harpenden.	Hemel Hempstead.	Hertford Borough.	Hitchin.	Hoddesdon.	Rickmansworth.	Royston.	St. Albans City.	Sawbridge-worth.	Stevenage.	Tring.	Ware.	Watford.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	1	...	...	...	...	2	3	7	...	...	...	...	1	...	...	...	...	14	2
1	...	...	1	...	...	2	1	...	1	...	...	...	...	2	1	...	1	...	5	3
...	1	1	...	1	1	...	1	...	2	2	1	..	1	2	1	1	3	...	13	4
1	...	...	...	...	1	...	...	2	...	...	...	1	1	1	...	...	1	...	15	5
...	...	...	...	...	...	..	2	...	...	...	...	...	..	...	..	1	...	...	1	6
...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	7
1	6	1	3	4	3	3	1	7	5	1	3	2	1	2	...	...	3	2	5	8
...	...	1	1	...	2	3	...	...	1	4	2	...	...	...	...	..	1	3	6	9
...	...	1	1	...	...	2	1	4	2	...	2	...	2	...	1	2	...	3	2	10
...	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	...	11
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12
...	...	...	2	...	...	4	3	...	1	...	2	...	...	...	...	...	...	1	2	13
2	8	7	5	3	14	11	2	12	12	9	1	4	4	17	2	1	2	7	26	14
...	2	2	1	...	1	7	4	...	2	6	1	3	...	10	1	2	1	...	16	15
5	8	3	15	5	14	9	5	18	12	11	7	2	8	19	6	6	8	8	36	16
4	15	7	16	5	11	16	2	12	7	17	7	4	3	23	2	3	5	7	50	17
5	3	2	6	5	6	5	3	9	14	7	6	5	2	10	1	1	1	6	24	18
...	2	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	19
...	2	3	1	2	3	2	...	8	3	...	4	...	...	...	...	...	...	1	...	20
...	...	3	...	...	1	1	...	1	3	3	1	3	...	1	1	3	2	...	7	21
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	22
1	3	5	1	2	10	3	1	2	2	2	1	4	...	3	1	7	2	3	12	23
1	...	1	...	...	1	1	1	1	...	3	...	2	...	...	...	...	...	...	1	24
3	9	5	16	3	14	12	12	19	11	7	3	5	7	29	8	12	12	6	39	25
2	5	1	1	4	1	9	1	5	3	2	3	7	1	1	...	...	1	2	9	26
...	2	1	1	...	1	1	...	...	...	1	...	...	1	2	...	...	1	...	4	27
16	29	24	30	21	61	44	15	50	47	63	19	27	12	66	8	16	13	29	141	28
42	95	70	101	55	145	136	53	157	136	139	63	70	43	189	33	56	59	78	428	

TABLE 7.—CAUSES OF DEATH in
at divers age-periods

CAUSES OF DEATH.	DEATHS IN ALL RURAL DISTRICTS AT SUBJOINED AGES.						
	All Ages.	Under 1	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and up- wards.
1 Smallpox ... ..	...	...	...	...	...	...	...
2 Measles	10	2	8	...	...	...	...
3 Scarlet Fever	2	...	2	..	..	...	...
4 Whooping Cough	16	7	9	...	...	...	...
5 Diphtheria and Membranous Croup...	9	...	2	7	...	...	...
6 Croup	3	2	...	...	...	...	...
7 Enteric Fever	2	...	...	...	...	2	...
8 Epidemic Influenza	29	1	...	3	1	10	14
9 Diarrhœa	11	8	...	...	...	...	3
10 Enteritis	10	4	1	...	...	1	4
11 Puerperal Fever	1	...	...	..	...	1	...
12 Erysipelas	5	...	...	...	...	2	3
13 Other Septic Diseases	10	...	...	1	...	2	7
14 Phthisis	76	...	2	5	13	52	4
15 Other Tuberculous Diseases	22	4	4	5	3	5	5
16 Cancer or malignant disease	99	...	...	...	...	49	50
17 Bronchitis	111	18	3	...	...	13	77
18 Pneumonia	71	14	10	7	3	16	21
19 Pleurisy	9	1	...	...	...	4	4
20 Other Diseases of Respiratory Organs	16	6	..	2	1	3	4
21 Alcoholism and Cirrhosis of Liver ...	9	...	...	...	...	9	...
22 Venereal Diseases ... ..	...	...	...	...	...	...	...
23 Premature Birth	42	42	...	...	...	...	...
24 Diseases and Accidents of Parturition	6	...	...	...	1	5	..
25 Heart Diseases	128	6	2	6	5	45	64
26 Accidents	31	...	5	2	1	15	8
27 Suicides	8	...	...	...	2	5	1
28 All other causes	502	77	9	7	13	100	296
All causes... ..	1238	192	57	45	39	344	561

DEATHS IN EACH DISTRICT (AT ALL AGES).													Causes of Death.
1	2	3	4	5	6	7	8	9	10	11	12	13	
Ashwell.	Barnet.	Berkhampstead.	Buntingford.	Hadham.	Hatfield.	Hemel Hempstead.	Hertford.	Hitchin.	St. Albans.	Ware.	Watford.	Welwyn.	
...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	1	1	1	2	...	...	2	1	2	...	...	...	2
...	...	...	...	...	...	...	...	1	1	...	...	...	3
3	1	3	...	...	1	2	...	1	...	1	4	...	4
1	1	1	...	...	...	2	...	1	...	1	2	...	5
...	...	...	...	...	...	...	1	...	...	...	2	...	6
...	...	1	...	...	...	...	...	...	...	1	...	...	7
...	...	...	2	2	2	...	4	8	2	2	6	1	8
1	...	...	...	1	1	1	1	1	4	1	..	...	9
2	1	...	...	...	...	...	..	...	1	1	4	1	10
...	...	...	...	...	...	...	...	...	...	...	...	1	11
...	...	...	...	1	2	...	...	...	..	2	...	...	12
...	...	...	2	1	...	...	5	...	...	1	1	...	13
1	3	2	2	1	11	5	7	10	7	13	12	2	14
1	3	...	2	1	3	1	1	4	2	2	2	...	15
6	6	9	6	6	7	7	5	11	9	14	11	2	16
4	5	13	6	10	7	6	6	12	9	18	14	1	17
4	2	2	1	7	5	3	9	13	10	6	9	...	18
...	1	1	...	...	...	...	2	...	3	...	2	...	19
...	1	2	1	2	...	..	...	1	1	1	6	1	20
...	1	1	1	...	...	...	...	3	...	...	...	3	21
...	...	...	...	...	...	...	...	...	...	...	...	...	22
1	3	5	1	4	3	1	...	7	7	4	5	1	23
...	...	...	...	...	...	...	1	1	2	2	...	...	24
13	3	10	4	15	1	6	7	23	19	14	10	3	25
4	1	2	2	2	5	...	1	2	1	6	3	2	26
...	...	...	2	...	2	1	1	1	...	1	...	...	27
21	20	32	32	23	40	30	31	80	69	45	65	14	28
62	53	85	65	78	90	65	84	181	149	136	158	32	

CAUSES OF DEATH.

The actual number of deaths recorded from each cause in the several districts is given in Tables 6 and 7 (pp. 16-19).

The most important causes of death from a hygienic point of view are represented in the infant-mortality and in the death-rates from epidemic diseases, from diarrhœa, phthisis, and cancer.

TABLE 8.—*INFANT-MORTALITY.*

(* Ratio of deaths under one year of age per thousand births registered.)

(For individual Districts see flyleaf at end.)	Rate,* 1902.	Rate,* 1903.	Rate,* 1904.	Rate,* 1905.	Rate,* 1906.	Rate,* 1907.	Number, 1907.
Urban Districts ...	94·87	83·52	108·88	89·7	109·36	78·1	327
Rural Districts ...	89·62	84·40	101·47	84·7	107·65	83·1	192
County	92·93	83·87	106·16	87·9	108·76	79·9	519
<i>England and Wales</i>	<i>133</i>	<i>132</i>	<i>146</i>	<i>128</i>	<i>133</i>	<i>118</i>	<i>108,214</i>

In the Urban Districts this figure varied from 36·6 (St. Albans) to 148 (Berkhampstead); in the Rural from under 40 (Ashwell and Buntingford) to 135 (Berkhampstead). East Barnet Valley and Hoddesdon Urban, and Hatfield and Hemel Hempstead Rural also have rates over 100. Watford, our biggest town, has a rate of 72. It will be noticed on referring to the Table of Chief Statistics at the end of the Report that Hoddesdon has the highest and Baldock the lowest average figures for the last eight years in Urban Districts, while in the Rural, Berkhampstead has had the highest and Ware the lowest average rates. The District Councils concerned should take these figures seriously to heart.

The infant-mortality for Hertfordshire in 1898 and following years was: 111, 121, 112, 104, 93, 84, 106, 88, 109, and 80. For the decades 1881-1890 and 1891-1900 it was 108 and 110 respectively.

The infant-mortality rate in Hertfordshire compares favourably with the corresponding figures—for Rural England in 1907, 106, for 142 smaller towns 122, 76 great towns 127, London 116, Glasgow 130, Dublin 159, and for certain foreign and Colonial towns from under 90 in Christiania (80), Stockholm, Amsterdam, and Melbourne to 232 in Breslau and 251 in St. Petersburg. The infant-mortality for County Durham is 136.

Compared with the 54 other counties, Hertfordshire had the thirteenth lowest figure in 1906, and for the five years 1901-5 the lowest figure (92), except Wilts (91) and Westmoreland (89).

In 1907, then, the infant-mortality for Hertfordshire reached the lowest figure it has yet touched; in 1906 it had risen, owing to a hot dry summer, to 109. In contrast to 1906, however, there was in 1907 little diarrhœa, owing no doubt to a rainy summer, and little consequent opportunity for dust, flies, and other insanitary agencies to operate.

But the common rate of infant-mortality is most unsatisfactory. In England and Wales the rate until recently was little lower than in 1850, the highest rate being that of 163 in 1899.

To assist in analysing the causes of this mortality the following Tables 9 and 10 have been prepared showing the cause of infant-deaths at different stages of the first year of their lives respectively in the Urban and Rural sections of the County.

The subsequent Table 11 gives with certain other figures the number of infant-deaths at each period of the first year of life in the different Districts, from which some idea of the care of infant-life in each District may be gathered.

This infant-mortality is a melancholy tale of sheer waste, preventible waste, of life. What are the factors in the life of the people which tend to maintain the evil, and which, if amended, may tend to abolish it?

Sociologically:—(1) Employment in factories of mothers, late in pregnancy, too soon after childbirth, and too much throughout the childhood of their family; (2) Ignorance and carelessness of mothers; (3) Overcrowding and defective housing; (4) Venereal disease and alcoholism, transmitting effects through several generations; (5) Illegitimacy; (6) Perhaps the abuse of infant insurance.

From the medical aspect:—(1) The decrease of the custom of breast-feeding in all classes; (2) The substitution after weaning of wrong food wrongly given; (3) Defective arrangements for milk supply; (4) Lack of general care of children, as to fresh air, bodily warmth, sleep, and cleanliness; (5) Accidents, as from fire or overlaying, due to parental carelessness.

A second National Conference on this subject was convened this year by the President of the Local Government Board; your County Medical Officer attended as your representative, and the same lessons were emphasised.

To instruct the coming generation in elementary hygiene, to encourage breast-feeding, to purify milk-supplies, to employ women especially trained in the hygiene of infancy in public health work, to encourage midwives to be the missionaries of this policy, to adopt "The Notification of Births Act," and make good use of it—these measures may well be vigorously undertaken by the County and District Councils with a firm intention of reducing the preventible death of infants to a normal figure or half the present amount. The County Council are now advised to adopt "The Notification of Births Act, 1907," for the whole County, as an adjunct to "The Midwives Act, 1902."

TABLE 9.—CAUSES OF INFANT-MORTALITY
IN URBAN DISTRICTS.

Population, 178,343. Deaths from all Causes at all Ages, 2,127.

CAUSE OF DEATH.	Under 1 Week.	1-2 Weeks.	2-3 Weeks.	3-4 Weeks.	Total under 1 Month.	1-2 Months.	2-3 Months.	3-4 Months.	4-5 Months.	5-6 Months.	6-7 Months.	7-8 Months.	8-9 Months.	9-10 Months.	10-11 Months.	11-12 Months.	Total Deaths under one year
<i>Common Infectious Diseases:</i>																	
Smallpox ... ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Chicken-pox ... ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Measles ... ..	..	..	..	..	..	..	..	..	..	..	..	2	..	2	..	1	5
Scarlet Fever ... ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diphtheria: Croup ... ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Whooping Cough	1	..	..	1	2	1	2	1	1	1	1	..	2	..	..	..	11
<i>Diarrhæal Diseases:</i>																	
Diarrhœa, all forms ... ..	..	1	..	..	1	1	..	1	4	2	1	2	..	..	1	..	13
Enteritis (not Tuberculous)	..	..	..	..	..	2	..	1	1	..	..	1	1	..	..	..	6
Gastritis, Gastro-intestinal Catarrh ... ..	..	..	..	..	..	1	..	1	..	1	..	1	1	..	..	..	5
<i>Wasting Diseases:</i>																	
Premature Birth	45	8	3	2	58	1	..	..	..	..	..	..	..	..	..	..	59
Congenital Defects... ..	8	3	2	1	14	..	..	3	..	..	..	..	..	..	..	..	17
Injury at Birth	4	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	4
Want of Breast-milk ... ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Atrophy, Debility, Marasmus	6	3	3	8	20	14	9	5	2	5	2	2	1	..	1	1	62
<i>Tuberculous Diseases:</i>																	
Tuberculous Meningitis ... ..	..	..	..	..	..	..	..	..	1	1	..	..	..	1	..	..	3
Tuberculous Peritonitis. } Tabes Mesenterica }	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	2
Other Tuberculous Diseases	..	..	..	..	..	1	..	..	1	..	1	..	..	..	..	..	3
Erysipelas ... ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Syphilis ... ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Rickets ... ..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1
Meningitis (not Tuberculous)	..	..	1	..	1	..	..	..	1	..	1	..	..	..	1	..	4
Convulsions	3	3	2	2	10	2	2	6	2	2	..	1	4	..	..	1	39
Bronchitis ... ..	..	1	2	1	4	8	6	..	3	2	7	3	4	1	1	4	43
Laryngitis ... ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Pneumonia ... ..	..	..	2	1	3	3	2	2	2	..	2	2	4	2	1	1	24
Suffocation, overlaying	3	..	..	..	3	..	..	..	..	..	..	..	1	..	..	..	4
Other Causes..	8	3	3	5	19	1	2	1	..	3	2	1	..	1	..	1	31
All Causes: Certified	74	22	18	20	134	35	23	21	19	18	16	15	18	7	5	9	320
Uncertified	4	..	..	1	5	..	..	1	..	..	1	..	..	..	..	..	7
Totals for Urban Districts ...	78	22	18	21	139	35	23	22	19	18	17	15	18	7	5	9	327

TABLE 10.—CAUSES OF INFANT-MORTALITY
IN RURAL DISTRICTS.

Population, 100,008. Deaths from all Causes at all Ages, 1,288.

CAUSE OF DEATH.	Under 1 Week.	1-2 Weeks.	2-3 Weeks.	3-4 Weeks.	Total under 1 Month.	1-2 Months.	2-3 Months.	3-4 Months.	4-5 Months.	5-6 Months.	6-7 Months.	7-8 Months.	8-9 Months.	9-10 Months.	10-11 Months.	11-12 Months.	Total Deaths under one Year.
<i>Common Infectious Diseases :</i>																	
Smallpox ... ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Chicken-pox ... ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Measles ... ..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	2
Scarlet Fever ... ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diphtheria : Croup ... ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Whooping Cough ... ..	..	..	..	..	..	1	..	1	1	..	..	..	1	1	..	..	5
<i>Diarrhæal Diseases :</i>																	
Diarrhœa, all forms ... ..	..	..	..	..	..	..	1	2	..	2	1	1	..	..	1	..	8
Enteritis (<i>not Tuberculous</i>) ... ..	..	..	..	..	..	..	..	1	1	2	1	1	..	..	..	..	6
Gastritis, Gastro-intestinal Catarrh ... ..	..	..	..	..	..	..	..	1	..	1	..	..	1	..	..	..	3
<i>Wasting Diseases :</i>																	
Premature Birth	30	7	2	1	40	1	..	1	..	..	..	..	..	..	..	..	42
Congenital Defects	14	2	..	1	17	1	1	..	..	..	..	1	..	..	..	..	20
Injury at Birth ... ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Want of Breast-milk ... ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Atrophy, Debility, Marasmus	5	1	5	3	14	5	3	4	2	2	1	..	..	..	..	1	32
<i>Tuberculous Diseases :</i>																	
Tuberculous Meningitis ... ..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1
Tuberculous Peritonitis : } Tabes Mesenterica }	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	2
Other Tuberculous Diseases ... ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Erysipelas ... ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Syphilis ... ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Rickets ... ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Meningitis (<i>not Tuberculous</i>)	1	..	..	..	1	..	..	..	..	1	..	1	2	..	1	..	6
Convulsions	2	2	..	..	4	2	1	1	..	3	2	..	..	..	..	..	13
Bronchitis ... ..	..	..	..	2	2	1	5	..	1	..	1	2	1	2	1	2	18
Laryngitis ... ..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	2
Pneumonia ... ..	..	..	..	..	..	3	..	2	1	..	..	..	1	2	1	5	15
Suffocation, overlaying ... ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Other Causes... ..	2	1	1	..	4	3	4	..	1	..	2	1	1	..	..	1	17
All Causes : Certified	51	11	8	7	77	18	14	13	6	10	8	10	7	6	5	9	183
Uncertified	3	2	..	..	5	..	1	..	1	1	1	..	..	..	..	..	9
Totals for Rural Districts... ..	54	13	8	7	82	18	15	13	7	11	9	10	7	6	5	9	192
,, Urban ,,	78	22	18	21	139	35	23	22	19	18	17	15	18	7	5	9	327
,, County	132	35	26	28	221	53	38	35	26	29	26	25	25	13	10	18	519

TABLE II.—INFANT-MORTALITY

DISTRICTS.	Population, 1907.	Deaths at all ages.	BIRTHS.		INFANT DEATHS IN FIRST FOUR WEEKS.			
			Legitimate.	Illegitimate.	1	2	3	4
<i>Urban.</i>								
1 Baldock	1,918	42	50	3	2	...	...	1
2 Barnet	9,582	95	235	16	5	2	1	1
3 Berkhamstead	5,529	70	98	3	3	3	1	2
4 Bishop's Stortford	7,490	101	155	7	2	...	...	1
5 Bushey	5,344	55	109		2	1	1	...
6 Cheshunt	13,280	145	292	10	12	...	...	...
7 East Barnet Valley	11,800	136	226	6	3	2	2	2
8 Harpenden	6,081	53	117	3	2	1	1	1
9 Hemel Hempstead	12,384	157	291	10	4	2	3	2
10 Hertford	9,600	136	213	12	4	...	2	...
11 Hitchin	11,044	139	267	19	1	2	2	1
12 Hoddesdon	5,150	63	105	3	2	...	...	...
13 Rickmansworth	6,516	70	153	9	7	1	..	1
14 Royston	3,716	43	80	2	...	1	1	1
15 St. Albans	18,250	189	340	15	3	...	...	...
16 Sawbridgeworth	2,350	33	50	...	2	1	...	1
17 Stevenage	4,250	56	119	2	1	3	1	...
18 Tring	4,349	59	87	3	3	...	1	1
19 Ware	5,755	78	155	7	3	3	...	1
20 Watford	38,000	428	882	32	17	...	2	5
	182,388	2148	4186		78	22	18	21
<i>Rural.</i>								
1 Ashwell	3,953	62	74	2	1	...	...	1
2 Barnet	4,737	53	112	...	4	...	...	...
3 Berkhamstead	6,034	85	117	1	8	1	...	1
4 Buntingford	4,840	65	104	10	1	...	...	...
5 Hadham	5,204	78	118	3	5	2	...	...
6 Hatfield	7,551	93	160	2	3	...	3	2
7 Hemel Hempstead	6,012	65	119	3	3	1	...	...
8 Hertford	7,525	84	160	6	2	...	...	..
9 Hitchin	12,117	181	341	14	9	3	2	...
10 St. Albans	13,865	149	395	16	10	...	3	1
11 Ware	11,180	136	214	5	5	3	...	...
12 Watford	15,137	158	272	3	2	3	...	1
13 Welwyn	2,293	32	59		1	...	...	1
Total Rural	100,448	1241	2310		54	13	8	7
,, Urban	182,388	2148	4186		78	22	18	21
Total County	282,836	3389	6496		132	35	26	28

INFANT DEATHS IN FIRST TWELVE MONTHS.

1	2	3	4	5	6	7	8	9	10	11	12	Total.	Rate per 1,000 births.	Districts.
3	...	...	...	1	...	...	...	...	...	1	...	5	94.3	1
9	1	1	...	...	1	3	...	1	1	...	...	17	67.7	2
9	...	...	2	1	1	...	2	...	...	...	...	15	148.5	3
3	1	3	2	...	1	...	2	1	1	1	1	16	98.8	4
4	1	2	...	...	...	...	...	1	...	...	...	8	73.4	5
12	5	3	3	...	1	3	...	...	...	...	...	27	89.4	6
9	2	1	1	6	1	1	...	1	1	1	...	24	104.5	7
5	...	...	...	...	...	...	1	1	...	...	...	7	58.4	8
11	3	1	...	1	1	...	2	...	2	...	...	21	69.8	9
6	3	2	1	...	1	2	2	3	..	...	1	21	93.3	10
6	2	...	1	4	3	1	1	2	...	1	1	22	76.9	11
2	2	1	2	...	...	3	...	1	1	...	1	11	101.9	12
9	2	1	...	...	...	1	..	1	...	...	...	14	86.4	13
3	...	...	...	1	2	...	...	...	...	...	...	6	73.2	14
3	1	1	2	...	2	...	1	1	...	...	2	13	36.6	15
4	...	...	...	...	...	...	...	...	...	...	...	4	80	16
5	1	...	2	...	...	...	...	...	...	...	...	8	66.1	17
5	...	1	...	...	...	...	...	...	...	1	...	7	77.7	18
7	1	1	1	...	2	1	...	2	...	...	...	15	92.6	19
24	11	4	7	5	2	2	4	3	1	...	3	66	72.2	20
139	36	22	24	19	18	17	15	18	7	5	9	327	78.1	
2	...	1	...	...	...	...	...	...	...	...	...	3	39.5	1
4	1	...	...	...	1	...	...	...	...	...	...	6	53.6	2
10	2	3	...	...	...	...	...	1	...	...	...	16	136.5	3
1	1	...	1	...	...	...	...	...	1	...	...	4	35.1	4
7	1	...	1	...	...	...	1	...	...	1	...	11	90.9	5
7	2	...	...	...	5	...	...	3	1	1	1	21	129.7	6
4	2	1	2	...	...	1	2	...	...	...	1	13	106.5	7
2	...	...	1	2	...	..	1	...	...	...	1	7	42.2	8
14	4	3	1	2	...	1	2	...	1	1	2	31	87.3	9
14	3	4	3	...	3	3	2	...	1	2	...	35	85.1	10
8	1	1	...	1	2	1	1	...	2	...	2	19	86.7	11
6	1	1	4	2	...	3	1	2	...	..	2	22	80	12
2	...	1	...	...	...	...	...	1	...	...	...	4	67.7	13
82	18	15	13	7	11	9	10	7	6	5	9	192	83.1	
139	36	22	24	19	18	17	15	18	7	5	9	327	78.1	
221	54	37	37	26	29	26	25	25	13	10	18	519	79.9	

CAUSES OF DEATH.—DIARRHŒA.

This heading represents mainly deaths from infective enteritis or epidemic diarrhœa, occurring mostly in infants in the summer months, as apart from simple enteritis, cholera, or enteric fever.

TABLE 12.—DEATH-RATES FROM DIARRHŒA, 1902–7.

(For individual Districts see flyleaf at end.)	Rate, 1902.	Rate, 1903.	Rate, 1904.	Rate, 1905.	Rate, 1906.	Rate, 1907.	Number, 1907.
Urban Districts ...	0·16	0·16	0·64	0·27	0·62	0·13	24
Rural Districts ...	0·17	0·09	0·53	0·13	0·45	0·11	11
County	0·16	0·13	0·60	0·22	0·56	0·12	35
<i>England and Wales</i>	<i>1·26</i>	<i>0·55</i>	<i>0·86</i>	<i>0·59</i>	<i>0·87</i>	<i>0·29</i>	<i>10304</i>

In Hertfordshire the rate was negligible except in Ware (·5) and Cheshunt Urban, and Ashwell and St. Albans Rural (·3) Districts. Besides the 35 deaths registered as due to diarrhœa, several probably of the 33 deaths returned as due to enteritis belong to the same infection.

The 1907 rates were: for England and Wales 0·29, for Rural England 0·18, for London 0·33, for 76 great towns ·40, for 142 smaller towns 0·29.

The number of deaths from diarrhœa in Hertfordshire in 1898 and following years has been 217, 191, 148, 113, 43, 36, 163, 61, 155, and 35. The rates for the decades 1881–1890 and 1891–1900 were ·44 and ·47 per 1000 respectively.

The infection of epidemic diarrhœa, it appears, is spread by dust and flies, and by contact, especially through milk; and the victims are infants, mostly in their third to eighth months of life, who at that time are most susceptible. It is essential, therefore, to encourage breast-feeding, especially during summer months; to guard against dust and flies by proper scavenging and care of the roads; to advise the protection of cow's milk from dirt, and air and heat, and to discourage at all costs the use of condensed or stale milk, more especially amongst the poor.

CAUSES OF DEATH.—PHTHISIS.

Out of 3,219 deaths in the County, 248 were caused by Pulmonary Tuberculosis, popularly known as Phthisis or Consumption, the most prevalent and for obvious reasons by far the most infectious form of Tuberculosis, owing to infection of the breath.

TABLE 13.—DEATH-RATES FROM PHTHISIS, 1902-7.

(For individual Districts see flyleaf at end.)	Rate, 1902.	Rate, 1903.	Rate, 1904.	Rate, 1905.	Rate, 1906.	Rate, 1907.	Number 1907.
Urban Districts ...	0·91	0·94	0·90	0·92	0·75	0·83	151
Rural Districts ...	0·86	0·89	0·85	0·82	0·79	0·75	76
County	0·89	0·92	0·89	0·88	0·77	0·80	227
<i>England and Wales</i>	<i>1·23</i>	<i>1·20</i>	<i>1·24</i>	<i>1·14</i>	<i>1·15</i>	Not com	yet puted.

In Urban Districts the rate for 1907 varied from ·2 (Hoddesdon, Stevenage) to 1·3 (Berkhampstead, Hertford); in Rural Districts from ·2 (Hadham) to 1·5 (Hatfield). This latter high figure is only an exaggeration of a constantly high average for the District. The attention of the Councils of Districts having a comparatively high rate should be drawn to the fact, in the hope that greater attention to housing accommodation and other appropriate measures may further reduce the number of deaths from this preventible disease.

In 1898 and subsequent years the number of deaths from Pulmonary Tuberculosis in our County has been 177, 210, 207, 213, 236, 246, 253, 242, 214, and 248. Throughout England and Wales, however, the death-rate from phthisis has steadily diminished from 2·73 per thousand in 1851-1860 to 1·39 in 1891-1900. For Rural Counties of England and Wales the average rate for 1891-1900 was 1·29 per thousand. For Herts in the same decade it was 1·22; in the previous decade 1·43.

The London death-rate from phthisis in 1907 was 1·40; that for County Durham 0·97.

Tuberculosis causes more deaths every year than any other disease. At present the main measures for prevention depend on ventilation and a pure milk-supply. In an exhaustive report to the Local Government Board, Dr. Bulstrode has recently shown that the relative importance of these two factors differs from that hitherto assigned to them, the danger of infection by food, and especially milk, being considerably greater than usually understood. The Government have promised a Milk Bill this year; and attention is directed to the pages below on milk-supply (pp. 116-122).

CAUSES OF DEATH.—CANCER.

This refers to all forms of malignant disease, whether carcinoma, which seldom occurs before the age of 30, rodent ulcer, also a disease of advanced life, or sarcoma, which occurs from infancy-upwards.

TABLE 14.—DEATH-RATES FROM CANCER AT ALL AGES, 1902-7.

(For individual Districts see flyleaf at end.)	Rate, 1902.	Rate, 1903.	Rate, 1904.	Rate, 1905.	Rate, 1906.	Rate, 1907.	Number, 1907.
Urban Districts ...	0·76	0·83	0·91	0·93	0·87	1·12	205
Rural Districts ...	0·86	0·77	0·90	0·87	0·95	0·97	99
County	0·80	0·81	0·91	0·91	0·89	1·07	304
<i>England and Wales</i>	0·84	0·87	0·88	0·89	0·92	...	...

This rate varied in Urban Districts from 0·3 (Rickmansworth) to the exceptional figure of 2·6 (Baldock and Sawbridgeworth), in Rural from ·7 (Hertford, St. Albans, Watford) to 1·5 (Ashwell, Berkhamstead). But the rate for a single year in a small district is no criterion of the causes in that district and year leading to cancer. Cancerous patients often live for several years, especially after operation, and are finally carried off by some accident of the disease, such as a secondary deposit invading a blood-vessel, or by some complication set up by chill or fatigue. It is perhaps to some such final cause, induced by the wet weather, that the exceptional number of deaths in 1907 is due. The general tendency of the disease, however, shows remarkable uniformity; and the wider the area from which figures for the disease are collected, the more uniform do they become. Thus the death-rate from cancer for the whole County in the five years before 1907 had varied only from 0·80 to 0·91, and the average for the last eight years even of the small districts of Hertfordshire varies mostly between 0·7 and 1·0. But the total number of deaths in the County from this disease shows a steady increase. These numbers in 1898 and following years have been 74, 73, 209, 208, 211, 216, 246, 250, 250, and 303. The death-rate from cancer, now 1·07, was for the decade 1881-1890 only 0·67.

The cancer death-rate in London for 1902-6 averaged 1·01 per annum ; in 1906 it was 1·03.

Here, as usual, the death-rate from cancer is highest among females ; and in both sexes it is rising.

As in Hertfordshire, so also in England and Wales deaths from cancer have risen from 0·40 per 100 of population in 1866-70 to 0·50 in 1876-80, 0·63 in 1886-90, 0·80 in 1896-1900, and 0·92 in 1906. It is probable that, through greater precision of diagnosis and greater facilities for operation, several deaths are attributed to this disease which formerly would have passed undiagnosed. It is, of course, a disease of adult and old age, only 5 cases in the County having died of cancer this year at less than 25 years of age, while 150 of the 303 deaths were in people over 65 years old. This and the increase at all ages is shown by the following rates of mortality from cancer, *per thousand living at certain ages over 35*, for certain groups of counties in 1905, and in the previous half-decade.

TABLE 15.—*Death-Rates from Cancer in England and Wales, in groups of Counties, 1901-1906.*

(Crude rates from Registrar-General's last Annual Report, for 1906.)

(Rates per thousand living over 35.)	35-45.	45-55.	55-65.	65-75.	75 upwards.
Urban Counties, 1901-5 ...	·71	2·14	4·36	6·76	7·29
„ „ 1906... ..	·72	2·26	4·67	7·34	8·10
Rural Counties, 1901-5 ...	·58	1·74	3·80	6·52	7·58
„ „ 1906	·54	1·66	4·17	6·87	7·95

CAUSES OF DEATH.—SENILE MORTALITY.

This heading is given to show the proportion of deaths that take place in persons over 65 to deaths occurring at all ages. It gives some idea of the longevity of the population.

TABLE 16.—Percentage of deaths over 65 to deaths at all ages.

(For individual Districts see flyleaf at end.)	1901.	1902.	1903.	1904.	1905.	1906.	1907.
Urban Districts	33	34	34	34	35	35	37
Rural Districts	39	41	41	41	42	41	45
County	35	37	36	37	37	37	40

This figure remains remarkably still. The average of the past six years varies in the Urban Districts from 27·5 (Watford) to 44·7 (Royston); in the Rural from 30·1 (Barnet) to 54 (Buntingford). This is as might be expected. The more rural the population the greater the proportion of veteran residents, and the greater, therefore, the proportion of senile deaths.

The proportion of old persons in the whole population by the census of 1901 is as follows:—

TABLE 17.—PERCENTAGE OF POPULATION OVER 65.

	Number over 65.	Number at all ages.	Percentage
Urban Districts	8,584	155,150	5·7
Rural Districts	6,763	103,273	6·5
County	15,347	258,423	5·9

In 1906, of 1,000 males living in Hertfordshire between 65 and 75 years of age, 63 died; of those between 75 and 85, 136 died; of those over 85, 327 died. The corresponding numbers for the female sex were 55, 118, and 266. As compared with 15 other "home-counties" there is a higher death-rate amongst men of 65-75 than in any other, and amongst women than any other but Bedfordshire. 1907 was a bad year amongst us for the aged, but the mortality amongst the aged women was not so marked as amongst the aged of the other sex.

EPIDEMIOLOGY.

PREVALENCE OF EPIDEMIC DISEASE: *Mortality.*

For every disease, in so far as it is diagnosed, we have through the sub-registrars a certain knowledge of the number of deaths it causes in each district every year.

The number of deaths occasioned by infectious disease in the County during the past eight years is as follows:—

TABLE 18.—*Deaths from Infectious Disease, 1900-7.*

	Urban.								Rural.							
	1900	1901	1902	1903	1904	1905	1906	1907	1900	1901	1902	1903	1904	1905	1906	1907
Smallpox	0	0	12	1	0	0	0	0	0	0	6	0	0	1	0	0
Measles	15	27	37	36	32	9	35	28	24	13	6	5	15	8	12	10
Scarlet Fever	4	16	10	5	8	3	7	15	2	10	8	3	1	2	5	2
Whooping Cough	38	49	20	32	30	39	23	31	24	20	15	25	22	13	22	16
Diphtheria and Mem- branous Croup	35	27	26	23	7	13	11	23	22	17	22	10	7	12	6	9
Enteric Fever	19	10	8	5	9	6	6	3	5	2	3	0	1	2	1	2
Influenza	89	22	66	21	24	16	32	53	74	19	35	18	13	17	10	29
Diarrhoea	96	72	25	26	107	47	110	24	52	41	18	10	56	14	45	11
Puerperal Fever	6	2	4	2	1	0	5	2	2	5	2	1	5	2	3	1
Erysipelas	5	6	3	2	3	6	3	0	5	6	6	2	2	4	5	5
Tuberculous Diseases	196	180	214	210	219	220	193	210	101	100	106	108	128	100	107	98
Totals	503	411	425	363	440	359	425	389	311	233	227	182	250	175	216	183

The "epidemic death-rate" is the number of deaths in 1,000 living persons from seven particular diseases. Hertfordshire, except in measles and diarrhoea, compares well with Rural England.

TABLE 19.—EPIDEMIC DEATH-RATES, 1902-7.

(For individual Districts see fly- leaf at end.)	HERTFORDSHIRE.							Urban, 1907.	Rural, 1907.	Rural Engl'd, 1907.
	1902.	1903.	1904.	1905.	1906.	1907.				
Smallpox	'07	'01	'00	'004	'00	'00	'00	'00	'00	
Measles	'16	'15	'17	'06	'19	'13	'15	'09	'25	
Scarlet Fever	'07	'03	'03	'02	'04	'06	'08	'02	'06	
Whooping Cough	'13	'21	'19	'19	'16	'17	'17	'16	'21	
Diphtheria and Croup	'18	'12	'05	'09	'06	'11	'13	'09	'15	
Enteric and Continued Fever	'04	'02	'04	'03	'02	'02	'02	'02	'06	
Diarrhoea	'16	'13	'60	'22	'55	'12	'13	'11	'18	
Totals	'81	'67	1'08	'61	1'02	'62	'68	'49	'92	

The year 1907 had an average mortality from epidemic disease That from measles was less than in 1906, that from diarrhoea was the

lowest on record. That from enteric continues low, while that from diphtheria and scarlet fever shows considerable increase. Even with regard to these diseases the County compares well with Rural England, while in enteric fever the mortality is only one-third as great, in measles one-half, in diarrhœa two-thirds, in whooping-cough three-quarters, and only in scarlet fever is it equal. As compared with the figures in Table 25 of last year's Report, giving the corresponding rates for 1881-1890 and 1891-1900, the figures for 1907 show that the mortality from each disease is from one-fifth to one-half what it was twenty years ago; and the total mortality of $\cdot 62$ per 1,000 compares with one of $1\cdot 63$ for males and $1\cdot 30$ for females in the decade 1881-1890. It must be remembered, however, that the constant decline in the birth-rate has given a relatively smaller number of children of susceptible age.

The mortality from infectious diseases varies greatly according to the prevalence and virulence of epidemics; but owing to the more frequent opportunities for infection in populous localities, the epidemic mortality is usually greater in urban than in rural districts. Thus, in Hertfordshire in 1907 the urban districts have an epidemic rate of $\cdot 68$ against the $\cdot 49$ of the rural; the former varying from $\cdot 1$ (Barnet) to $2\cdot 0$ (Tring), the latter from *nil* (Welwyn) to $1\cdot 3$ (Ashwell). The highest epidemic death-rates for the last seven years are $1\cdot 4$ (Watford, which probably, however, has an underestimated population), $1\cdot 2$ (Cheshunt and Ware), $1\cdot 1$ (Baldock and Tring), and $1\cdot 0$ (Barnet Rural, Hatfield Rural). The attention of their District Councils should be called to this unenviable distinction. The lowest rates are $\cdot 5$ per 1,000 in Royston and Stevenage Urban, in Ashwell, Buntingford, and Watford Rural Districts.

Notification through the Schools (see p. 43).

The County Council, being now both the Education and the higher Sanitary Authority for the County, has taken measures to make known and to curtail the spread of infectious disease in schools. Postcards, already addressed to the District Medical Officers, are distributed to each school with instructions to all head teachers to notify on them cases of any infectious disease, not merely the diseases commonly notified, amongst their scholars. As a check to this report, the School Attendance Officers report weekly the absentees from each school to the Assistant Education Officer. By both methods it is obvious that the knowledge of sickness thus acquired is crude and uncertain in the extreme; but it is the best that is to be had at present, and the system of thus notifying cases of sickness not only directs the attention of all concerned to the most important question of the children's

health, but it will also pave the way to the further action that now results from the passing last year of a measure providing for medical inspection of school-children. This system also promotes early closure of schools and exclusion of scholars. The Managers, on the advice of any medical practitioner, or two members of the Sanitary Authority, on the advice of their Medical Officer of Health, may close a school, and it is hoped that exclusion of individual scholars may be more frequently adopted than hitherto in the early stages of an outbreak. The very earliest and most doubtful symptoms should be sufficient for exclusion, and a single pronounced case should be a signal for closure. At a later stage closure is of little use. This is of special importance as regards measles, which is infectious for three or four days before the rash appears and has an incubation-period of twelve to fourteen days. By the time the first case is recognised and stays away from school it will have infected a certain number of children. But those children who have caught the infection will not be infectious for some days yet. Therefore the school may remain open for another week. But it should then be closed, or the particular class or department liable to infection should be closed, regardless of the effect of this procedure upon the grant. It is wholly wrong, for the sake of the grant, to subject children to compulsory education when it carries with it the danger of infection. A week's closure will in this case be sufficient, followed by exclusion of scholars from infected houses.

It is to be hoped that the Council will issue instructions to this effect to Managers.

Weekly County Return.—Until 1906 the occurrence of infectious disease outside their own District was not known to District Authorities, and the amount of infectious disease throughout the County was only known to the County Authorities by the Annual Reports of the following year. In 1906, however, the County Council gave instructions for a weekly voluntary system of notification to be arranged, by which, with the kind help of District Medical Officers of Health, a table of the cases notified each week has been issued on the following Wednesday.

The willing co-operation of the District Officers, in voluntarily sending me their weekly returns on forms provided by the County Council, deserves cordial recognition. These returns include both the notifications received from medical practitioners of diseases notifiable by statute and from head-teachers of diseases not so notified. In compiling them into one form for the whole County, notes are made on the reverse side of the particular schools or parts of the more scattered districts affected, returns from neighbouring counties, and other subjects in which the County Medical Officer hopes for the co-operation of District

Medical Officers of Health. District Officers are thus kept informed of illness approaching their own Districts from outside and of the general sanitary work of the County.

Under "The Education (Administrative Provisions) Act, 1907," this return, in so far as it concerns the school, will now be one of the duties of District Medical Officers of Health as School Medical Officers. It is hoped that it will thus become more complete and more useful.

This weekly return is a most useful step towards the harmonisation and levelling up of the work throughout the County; and several District Officers have expressed their appreciation of it, as an encouragement to them in the often difficult work of their otherwise isolated and responsible office. In getting the information required they may be put to a small postal expense, which it is hoped the County Council will reimburse.

TABLE 20.—*Notifications of Infectious Disease, 1900-7.*

	URBAN.								RURAL.							
	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.
Smallpox ...	3	3	82	11	5	2	0	0	0	1	28	0	4	1	0	0
Scarlet Fever ...	459	826	749	397	415	380	560	752	166	446	453	192	130	306	199	267
*Diphtheria ...	263	223	212	234	137	185	234	315	119	158	175	109	59	105	49	113
Enteric Fever ..	91	82	47	35	49	38	43	27	51	35	14	22	14	18	23	16
Continued Fever	3	1	0	0	1	0	0	0	0	0	0	0	0	7	0	0
Puerperal Fever	8	7	7	8	3	3	8	2	6	7	2	4	5	2	2	3
Erysipelas ...	119	122	119	81	101	121	137	90	60	46	38	55	55	65	61	52
†Tuberculosis ...	0	3	3	0	1	4	8	2	0	0	0	0	0	0	0	0
‡Chicken-pox ...	0	0	217	312	223	159	199	101	0	0	69	171	65	24	14	10
‡Measles ...	0	0	0	0	6	0	184	4	—	—	—	—	—	—	—	—
	946	1267	1436	1078	941	892	1373	1293	402	693	779	553	332	528	377	461

* Including Membranous Croup. † Notification voluntary. ‡ Notification adoptive.

Having thus ascertained the number of cases that have occurred of each disease and the number that have died, we can compare the one with the other and ascertain the proportion of cases that prove fatal. By comparing this fatality-figure in successive years we get some idea of the variation in intensity of the epidemic or of improvements owing to better treatment.

TABLE 21.—*Fatality of Infectious Disease, 1900-7.*

(Ratio, per cent., of Deaths to Notifications.)

	URBAN.								RURAL.							
	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.
Smallpox ...	0	0	14'6	9'1	0	0	0	0	0	0	21'4	0	0	100'0	0	0
Scarlet Fever ...	0'9	1'9	1'3	1'3	1'9	0'8	1'3	1'9	1'2	2'2	1'8	1'6	0'8	0'7	2'5	0'7
Diphtheria ...	13'3	12'1	12'3	9'8	5'1	7'0	4'7	7'3	18'4	10'8	12'6	9'2	11'9	11'4	12'3	8'0
Enteric Fever ...	20'8	12'2	17'0	14'3	18'4	15'8	13'9	11'1	9'8	5'7	21'4	0	7'1	8'0	4'4	12'5
Puerperal Fever	75'0	28'6	57'1	25'0	33'3	0	62'5	100'0	33'3	71'4	100'0	25'0	100'0	100'0	150	33'3
Erysipelas ...	4'2	4'9	2'5	2'5	3'0	4'9	2'2	0	8'3	13'0	15'8	3'6	3'6	6'2	8'2	9'6

TABLE 22.—NOTIFICATIONS of Infectious Disease
in the whole County.

DISEASE.							CASES NOTIFIED IN ALL URBAN DISTRICTS.						
							At all Ages.	In Age-Groups.					
								Under 1.	1 to 5.	5 to 15.	15 to 25.	25 to 65.	Over 65.
Urban.													
1. Smallpox	...	...	...	...	...	...	...	...	...	...	...	...
2. Cholera	...	...	...	...	...	...	...	...	...	...	...	...
3. Diphtheria and Membranous Croup	...	...	...	...	315	1	92	185	19	17	1	...
4. Erysipelas	...	...	...	...	90	6	4	4	2	57	17	...
5. Scarlet Fever	...	...	...	...	752	5	143	502	65	36	1	...
6. Typhus Fever	...	...	...	...	...	...	...	...	...	...	...	...
7. Enteric Fever	...	...	...	...	27	...	...	7	9	11	...	...
8. Relapsing Fever	...	...	...	...	...	...	...	...	...	...	...	...
9. Continued Fever	...	...	...	...	...	...	...	...	...	...	...	...
10. Puerperal Fever	...	...	...	...	2	...	...	...	...	2	...	...
11. Plague	...	...	...	...	...	...	...	...	...	...	...	...
12. Chicken-pox (adoptive)	...	...	...	...	101	8	30	57	4	2	...	...
13. Tuberculosis (voluntary)	...	...	...	...	2	...	...	...	1	1	...	...
14. Measles (adoptive)	...	...	...	...	4	...	1	3	...	...	...	...
Totals for Urban Districts	...	...	...	...	1293	20	270	758	100	126	19	...
DISEASE.							CASES NOTIFIED IN ALL RURAL DISTRICTS.						
							At all Ages.	In Age-Groups.					
								Under 1.	1 to 5.	5 to 15.	15 to 25.	25 to 65.	Over 65.
Rural.													
1. Smallpox	...	...	...	...	...	...	...	...	...	...	...	...
2. Cholera	...	...	...	...	...	...	...	...	...	...	...	...
3. Diphtheria and Membranous Croup	...	...	...	...	113	2	16	80	9	6	...	...
4. Erysipelas	...	...	...	...	52	3	1	2	8	34	4	...
5. Scarlet Fever	...	...	...	...	267	7	69	155	27	9	...	...
6. Typhus Fever	...	...	...	...	...	...	...	...	...	...	...	...
7. Enteric Fever	...	...	...	...	16	...	1	2	4	9	...	...
8. Relapsing Fever	...	...	...	...	...	...	...	...	...	...	...	...
9. Continued Fever	...	...	...	...	...	...	...	...	...	...	...	...
10. Puerperal Fever	...	...	...	...	3	...	...	...	...	3	...	...
11. Plague	...	...	...	...	...	...	...	...	...	...	...	...
12. Chicken-pox (adoptive)	...	...	...	...	10	...	4	6	...	...	...	...
Totals for Rural Districts	...	...	...	...	461	12	91	245	48	61	4	...

TABLE 23.—NOTIFICATIONS of Infectious Disease
in the several Districts.

Disease, see Table 22, p. 35.	URBAN DISTRICTS.																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
	Baldock.	Barnet.	Berkham- stead.	Bishop's Stortford.	Bushey.	Cheshunt.	East Barnet Valley.	Harpenden.	Hemel Hempstead.	Hertford Borough.	Hitchin.	Hoddesdon.	Rickmans- worth.	Royston.	St. Albans City.	Sawbridge- worth.	Stevenage.	Tring.	Ware.	Watford.	All Urban Districts.
1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3	2	8	1	1	14	14	11	...	4	12	4	4	4	2	8	3	...	5	...	218	315
4	1	2	3	...	4	11	5	1	4	1	10	4	2	1	2	2	13	2	1	21	90
5	34	30	3	25	15	53	38	11	44	7	7	9	12	1	163	6	4	36	...	254	752
7	1	1	2	1	4	...	1	...	...	1	2	...	...	...	2	...	...	2	3	7	27
10	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	2
12	...	...	23	...	...	...	41	...	...	...	...	...	...	...	16	...	11	10	...	...	101
13	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	2
14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	...	...	...	4
	38	41	32	27	37	78	96	12	52	21	23	17	19	4	193	11	32	55	5	500	1293
Disease, see Table 22, p. 35.	RURAL DISTRICTS.																				
	1	2	3	4	5	6	7	8	9	10	11	12	13								
	Ashwell.	Barnet.	Berkham- stead.	Buntingford.	Hadham.	Hatfield.	Hemel Hempstead.	Hertford.	Hitchin.	St. Albans.	Ware.	Watford.	Welwyn.	All Rural Districts.							
1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3	6	5	1	...	1	...	10	3	34	12	5	36	...	113							
4	4	1	2	1	3	7	4	1	2	9	9	9	...	52							
5	5	30	6	18	25	17	8	14	23	48	19	53	1	267							
7	...	...	7	...	...	...	1	...	1	5	1	1	...	16							
10	...	...	...	...	...	...	...	1	...	1	1	...	...	3							
12	...	...	10	...	...	...	...	...	...	...	...	...	...	10							
	15	36	26	19	29	24	23	19	60	75	35	99	1	461							

TABLE 24.—REMOVALS TO HOSPITAL
of cases of Infectious Disease.

Disease, see Table 22, p. 35.	URBAN DISTRICTS.																				Urban Total.
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
	Baldock.	Barnet.	Berkhamp- stead.	Bishop's Stortford.	Bushey.	Cheshunt.	East Barnet Valley.	Harpenden.	Hemel Hempstead.	Hertford Borough.	Hitchin.	Hoddesdon.	Rickmans- worth.	Royston.	St. Albans City.	Sawbridge- worth.	Stevenage.	Tring.	Ware.	Watford.	
1.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3.	...	3	1	...	6	14	...	...	...	9	...	4	4	...	...	3	...	5	...	164	213
4.	No Isolation Hospital.	...	...	...	...	...	...	...	...	...	No Isolation Hospital.	...	...	...	...	...	No Isolation Hospital.	...	...	...	...
5.	...	7	3	21	10	42	11	11	39	6	...	8	11	1	133	6	...	30	...	225	564
7.	...	1	1	...	1	...	1	...	...	...	...	...	...	...	...	...	No Isolation Hospital.	1	1	5	11
10.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12.	...	...	...	...	...	...	...	...	...	...	No Isolation Hospital.	...	...	...	...	...	No Isolation Hospital.	...	...	...	...
13.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	11	5	21	17	56	12	11	39	15	..	12	15	1	133	9	...	36	1	394	788	

Disease, see Table 22, p. 35.	RURAL DISTRICTS.													Rural Total.
	1	2	3	4	5	6	7	8	9	10	11	12	13	
	Ashwell.	Barnet.	Berkhamp- stead.	Buntingford.	Hadham.	Hatfield.	Hemel Hempstead.	Hertford.	Hitchin.	St. Albans.	Ware.	Watford.	Welwyn.	
1.	...	..	...	...	...	...	...	...	...	...	...	...	...	...
3.	5	...	1	..	1	...	...	3	No Isolation Hospital.	...	2	29	...	41
4.	..	..	...	...	...	...	...	...	...	...	...	...	...	...
5.	5	12	5	18	23	5	4	10	...	39	14	44	1	180
7.	...	...	6	...	...	...	..	...	...	...	...	...	...	6
10.	...	...	...	...	...	...	...	...	No Isolation Hospital.	...	..	...	..	...
12.	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	10	12	12	18	24	5	4	13	...	39	16	73	1	227

SMALLPOX.—In Hertfordshire no cases have been notified and no deaths registered during the past year. The numbers notified in 1900 and following years have been 3, 4, 110, 11, 9, 3, 0, and 0. The corresponding figures for the County of London have been 87, 1,700, 7,796, 416, 489, 74, 31, and 8, showing how close is the epidemiologic connection between the two counties.

There is serious danger in that no legal powers exist for the detention or re-vaccination of tramps who may be smallpox-contacts. Vagrancy is one of the chief means by which an epidemic finds its way into Hertfordshire. Proposals have been made for vagrants to be removed from the hands of the guardians into those of the police, with adequate powers to defend the public from this serious danger. It is to be hoped that the Poor-Law Commission will include some such scheme in their Report, due this year.

But by far the most potent weapon in our hands against smallpox is vaccination, a general adoption of which would save the rates almost all the burden cast on them by epidemics of this disease, either actual or possible.

It is only for the sake of those who evade the law or those whose consciences, or whose parents' consciences, compel them to be a constant menace to the public health that the rates are obliged to be burdened with the very inadequate but costly system of smallpox hospitals. These will be dealt with under the general heading of isolation-hospitals.

Vaccination, the most direct and certain instrument in our hands for combating infectious disease, is not carried out by the sanitary authorities but by the Guardians. Few Medical Officers of Health, therefore, give any account of it in their reports; but in the report for Rickmansworth attention is drawn to "The Vaccination Act, 1907," which enables the conscientious objector to obtain an exemption order by a statutory declaration before a Commissioner of Oaths or other authorised person instead of the certificate before Justices. It is to be hoped that this will induce many, who have hitherto opposed vaccination on the score of unjustifiable interference with personal liberty, to support the law and the universal consensus of medical opinion in all countries, by insisting on its thorough application. The conscientious objector cannot now complain; and the only complainant, therefore, can be the lazy man and the indifferent citizen.

The matter, however, requires careful watching; only so can the number of unvaccinated be known and any reasonable ground be furnished for action as regards the provision of accommodation for isolation of smallpox. It is a great disadvantage that no account of this most useful measure should figure in the annual sanitary reports of

each district. Without such account sanitary authorities have no knowledge of the degree to which the population are protected against a scourge for which they are called on to make hospital-provision. The sooner the control of vaccination passes to the hands of the sanitary authorities and an annual account of it figures in their annual reports, the sooner will they be prepared, as at present they are quite unprepared, to fight the next outbreak of this disease.

It would be well if the District Councils were requested to ask their Medical Officers to procure such returns by courtesy for inclusion in their next and subsequent annual reports.

CHICKEN-POX.—With a view to the detection of mild or modified cases of smallpox, the compulsory notification of chicken-pox has been adopted for various periods by the Urban District Councils of Barnet, Berkhamstead, East Barnet Valley, Hitchin, Rickmansworth, St. Albans, Stevenage, Tring, and by the Rural District Council of Berkhamstead. The reason for which it was originally made notifiable is the detection of smallpox, which the notifying practitioner may diagnose wrongly as chicken-pox. For this purpose it is as useful in the latent as in active periods of the disease, in order to catch the first unsuspected case of smallpox that may otherwise lead to an epidemic. In most of these districts it was adopted at the time of the last epidemic of smallpox, namely, 1902-3, and in most cases for five years, so that it will this year lapse, unless renewed.

Notifications have been received this year in Great Berkhamstead (23), East Barnet Valley (41), St. Albans City (16), Stevenage (11) and Tring (10) Urban, and in Hertford, St. Albans, and Ware (1 apiece) Rural Districts.

Even in the Districts in which cases are being notified, no attempts appear to have been made to persuade the parents to notify in the absence of medical attendance, and, since this disease is generally allowed to run its course unattended, no idea can be formed of the actual number of cases that existed. It cannot be too strongly urged that District and Borough Councils, in declaring these diseases notifiable, should take steps by issuing handbills, posting public notices, and advertising in the local Press to make known to parents and householders their duty to notify.

MEASLES AND WHOOPING COUGH.—Both these diseases were somewhat prevalent during the year, and together accounted for nearly 9 per cent. of the deaths under five years of age. Only 7 out of 85 deaths were in children over five. The deaths from whooping cough mostly occur before school-age, and so come under the notice neither of school nor sanitary authorities. Hence, although more serious even than measles,

it is hardly mentioned by Medical Officers of Health in their reports. The public must all the more be warned against it, and mothers should pay particular attention to every cold in their children under five.

An important series of observations at Woolwich under the London County Council has shown that in that District measles only spread in classes under five years of age, except in better-class areas; that it tended to spread whenever there were as many as 30 to 40 per cent. of children unprotected by a previous attack; and that it continued until only 15 to 20 per cent. were unprotected. Thus, if children under five had been excluded from school, they would have been protected from school-infection until they were at an age when the disease is less fatal; and most of the 38 deaths from measles under five in our County last year would have been averted.

The measles record of every child is now to be elicited on admission, as recommended in this Report last year, and the susceptibility to measles of each class will be thus known.

Measles in school is a class-disease, and class-closure is all that is required. This matter has been discussed on page 33.

The other important factors in the prevention of these diseases are sanitary buildings and the training of teachers. It is to be hoped that these remarks will be laid to heart by the education authorities and all school managers.

In 1904, as in 1903, measles was notifiable in Stevenage; 184 cases were notified last year, but only 4 notifications were received this year. It is a useful measure for the detection of anomalous cases of smallpox; but for the curtailment of the disease little can be done by the sanitary officials except to emphasise the need of home-isolation.

Outbreaks of measles, necessitating closure of Infants' Schools, are noted in the following reports:—

URBAN.—*Baldock*, only a few children not protected by a previous attack, closure for a few weeks.

East Barnet Valley, Hadley in May, closure for fortnight.

Harpenden, Bowling Alley, June 10th, to the holidays; reference made to the very useful County Council cards sent by the headmasters; and argument forcibly put at length for the procedure recommended above on page 33.

Hertford Borough, widespread epidemic at end of year, causing deaths, as did the last epidemic in 1902; did not spread to Ware.

St. Albans City, fairly severe, March to May; St. Peter's, Bernard Street, Abbey, Alma Road Infants', and Alma Road Girls' Schools closed for periods of three weeks.

Watford, prevalent, 14 deaths; Leavesden Road, Alexandra, and

National Infants' Schools closed; Callow Land, which was exempt in 1906, attacked; lives would probably have been saved had Medical Officer of Health been given early notification of cases and allowed to close the schools at the first; making disease notifiable again strongly recommended.

RURAL.—*Hertford*, spread from the Borough, especially to Hertford Heath; several schools closed.

Hitchin, closure only at Knebworth; notifications only from five schools.

SCARLET FEVER.—This disease, although still milder and less common than in 1901-2, caused a further rise of notifications last year. This rise occurred in 9 only out of the 20 Urban Districts and in 6 out of the 13 Rural Districts, and is not therefore general throughout the County, St. Albans and Watford being the chief sufferers. The scenes of the 1906-7 epidemic, in and around Hemel Hempstead, show a decline of the disease, which in those districts had to some extent burnt itself out. The notifications for 1898 and subsequent years (see Table 20) show a marked wave with its crest in 1901-2; namely, 337, 557, 625, 1,272, 1,202, 589, 545, 686, 759, 1,019. The fatality (see Table 21), although less trustworthy because of the smallness of the numbers concerned, nevertheless in the main shows a general correspondence.

The prevalence of scarlet fever rises and falls not only with the seasons in any one year, but also in rhythmic waves over a series of years, such a wave occupying five or six years; and this rhythm is subject to an even larger rhythm with a wave-length of about thirty years. During the last century scarlet fever was especially prevalent and malignant in the years 1801-4, 1834, 1861-70, and recently 1900-2. Scarlet fever, that is, shows in its prevalence a *thirty-yearly swell*, a *five-yearly wave*, and a *seasonal ripple*. In the memorandum presented in 1906 to the County Council on the "Value of Isolation Hospitals," it was shown that this was true in Hertfordshire as elsewhere.

The practical importance of this study is in the forecast it renders possible. As in the Reports for 1905-6 an increase of notifications of scarlet fever in the coming year was rightly predicted, so now is it possible to say that the chances are against any increase this year.

But why should we be content with the enormous educational loss, inconvenience, suffering, and death entailed by these 1,019 cases and deaths in 1907? Scarlet fever, like typhus, should be stamped out; and efforts should be redoubled to render effective the weapons already in the hands of the sanitary authorities.

This *need of precautions* is especially marked in the north of the County, which has not yet undergone its periodic rise in the incidence

of scarlet fever, and which, alone of all parts of the County, is still unprovided with a fever hospital. In Baldock there have been notified only 18 cases in ten years, in Hitchin 341, in Hitchin Rural District 286; and the number, therefore, of unprotected children must be very large. Letchworth, moreover, is growing apace. Baldock this year reports an epidemic of 34 cases, imported in the first instance from London, nursed towards the end by a nurse engaged for the purpose in their own homes, severe cases in local nursing home. The Medical Officer of Health notes the virtual absence of relapses and return-cases with ordinary care under this plan, and for the Hitchin Rural District their great rarity even when no care is taken; he notes the inability of any proposed isolation hospital to accommodate all cases of an outbreak; and finally the improved results obtained from convalescence in the open air, rather than in the small room of an hospital or cottage. It must, however, be remembered that the prime object of an isolation-hospital is to get hold of a first case and prevent an epidemic. This is impossible in Baldock and neighbouring districts until they erect an hospital.

The power of curtailing an epidemic depends on *prompt notification* and *isolation of the original case*. This is extremely difficult, because the common type of the disease at present is very mild, and often passes for a mere chill or remains unnoticed. Even medical men find it very difficult to diagnose, and cases go about unrecognised until they peel, or until a brother or sister or schoolfellow catches it from them in severer form. This fact is noted in the Reports for Bishop's Stortford Urban, and Hadham, Hertford, and Ware Rural Districts, all in the Combined Sanitary District of East Herts and Essex. On the other hand, unusually severe cases are noted in Cheshunt, St. Albans, and Watford Urban Districts, and the deaths have increased in the last three years from 5 and 12 to 17 in number. A severer type of disease is probably approaching, owing to the lack of protection afforded to children of school-age by the mild seasons of scarlet fever in recent years. So long as notification and isolation are conducted in a lazy, half-hearted way by the Sanitary Authorities, so long will the infection continue to live in our midst, and periods of diminished prevalence and virulence to be succeeded by periods of increased prevalence and virulence. Even when the first case is removed at once to hospital when the rash appears, it may happen as at Sawbridgeworth, where three other members of the same family contracted the disease. But this is rare; a common source of infection is usually found for any such sequence, as in a family at Watford, where 5 cases were traced to a sixth unrecognised case; and Cheshunt again, as frequently before, gives an instance of an epidemic being averted by the prompt action of the Medical Officer of

Health, and the practicability and advantage of such action is beyond controversy.

A few minor points may be noted in the District Reports. The influence of fresh air would seem responsible for the absence of secondary cases in houses where patients are treated at home in Rural Districts, as noted for Hatfield and Hitchin Rural Districts; evidence is accumulating to show the dissipation of the infecting agent by fresh air; and the same influence appears to be harmless and to assist markedly in the convalescence of cases and the prevention of residual foci of infection, which have in the past accounted for a large number of "return-cases." The point should engage the attention of Medical Officers and Matrons of isolation-hospitals, as well as private practitioners.

Return-cases are mentioned only at Bishop's Stortford and Ware Rural (Gilston, 2).

The influence of schools, either private or public elementary, in spreading the infection is noted in Cheshunt, Rickmansworth, and Watford Urban, and in Barnet and Watford Rural Districts; and in Watford, Parkgate School had to be closed for a fortnight. At Bishop's Stortford, on the contrary, the schools were found not guilty.

An hospital may similarly offer opportunities for the communication of scarlet fever; and St. Albans City reports 6 cases as occurring in August in the St. Albans and Mid Herts Hospital.

As usual, some outbreaks are traced to London, as at Harpenden, where 5 cases were directly or indirectly connected with infection from London children. This gives a reverse picture to the philanthropy of the Children's Country-Holiday Fund.

As to the symptoms of the disease, there is little new. But in the Bennington outbreak, in Hertford Rural District, there were several cases of nephritis, and probably many cases passed unrecognised; while at Cheshunt there was considerable confusion with a concurrent outbreak of several weeks' duration of German measles. At Rickmansworth one patient was an old lady of 70.

Increased attention to notification in the schools, in the household, and in general is the moral constantly to be drawn from a study of our experience of this disease; and the attention of the Education Committee is directed to these remarks.

DIPHTHERIA.—This disease in 1906 has caused a death-rate in Hertfordshire, equally in the Urban and the Rural Districts, of $\cdot 11$ per 1000, comparing favourably with that for Rural England of $\cdot 15$. It shows a considerable increase both in notifications and deaths from 1906, previous to which it had shown a decline since 1901. A further increase must be looked for in 1908. In 1898 and subsequent years the

numbers of notifications have been 263, 304, 382, 381, 387, 343, 196, 290, 283, and 428. The rise since 1904 in the Watford Urban District has continued from 38, 85, and 129 cases to 218; that in Watford Rural and Bushey, from 16 to 54, after sinking to 33, increased last year again to 50. This disease is five times as fatal to the individual attacked as scarlet fever, and in the Rural Districts the fatality rose from 11·4 in 1905 to 12·3 per cent. in 1906. In 1907 it fell again to 8·0, and this figure, is a great improvement on the 18·4, and the Urban fatality of 7·5 on that of 13·3, recorded in 1900. The improvement is probably to a considerable extent due to the increased use of antitoxin, which is kept and sent out by the Cheshunt and Hitchin District Councils, and on loan by the East Barnet Valley Urban District Council, and might with advantage be provided by other Councils. The greater difficulty in treating cases in rural areas with antitoxin at an early stage may partly account for the fact that in the Rural Districts the fatality is generally so high. The very great value of small doses of antitoxin also as a preventive in the schoolfellows or brothers and sisters of children already attacked may also be pointed out. It was in this way that the Offley outbreak in the Hitchin Rural District was eventually stemmed without the existence of an isolation-hospital. It is a question for consideration whether the District Councils should be advised to keep supplies of antitoxin for issue in emergencies on similar terms to those in the East Barnet Valley Urban District. (See further, p. 64.)

Bacteriological examination of the throat—a most important measure for the diagnosis of the disease—is undertaken in the East Barnet Valley, Cheshunt, and Hitchin Urban Districts, and also in the East Herts Districts. In the East Barnet Valley and Rickmansworth Reports the importance of systematically taking swab-specimens from the throat is pointed out, both with a view to correcting the diagnosis and occasionally saving a patient the inconvenience of being isolated for no purpose, and also for the discovery of unrecognised cases and the consequent checking of infection by isolation and inoculation. This measure will be of special value in the future medical inspection of school children; and the Education Committee may be asked to consider before long the legality and advisability of themselves providing facilities for this examination in case of need.

This early recognition of doubtful cases is of great importance, especially in schools and institutions. In Bushey 7 cases are again reported from one institution; 6 were so reported in the previous year. This deserves enquiry. School-teachers should promptly exclude any cases of sore-throat and notify all such cases to the District Medical

Officer of Health. In this disease neglect is unpardonable, for the throat or other symptoms are usually well-marked from the first; and the fatality is severe. As a rule there is no need to close the school if all "contacts" may be either inoculated or excluded. But in the Offley outbreak the schools were closed for disinfection.

In this Offley outbreak, in the Hitchin Rural District, 26 cases occurred at the end of last year; and, in the absence of any isolation-hospital, the services of the parish nurse and of another temporary nurse were enlisted to secure as thorough isolation, disinfection, and treatment as was possible. Antitoxin was used freely. The outbreak would seem to prove the need for a small hospital, as argued on p. 54. The origin of the outbreak could not be traced.

In Abbott's Langley, in the Watford Rural District, on the other hand, of 27 cases attacked, 25 were treated in the Watford Isolation Hospital. Infection is attributed to mild unrecognised cases, especially in schools, in which the need of good sanitation and the value of medical inspection is emphasised.

The connection of diphtheria with defective sanitation is again frequently illustrated in Hitchin Urban District, where there have been 75 cases in fifteen years, in Royston Urban, in Barnet Rural, and above all in Watford Urban District, where a disused brick sewer has been the subject of much attention. See p. 92.

The 32 deaths that occurred from diphtheria last year were probably to some extent preventable, and it may be hoped that the attention of both sanitary and educational authorities will be drawn to their responsibilities in the matter. Diphtheria must be stamped out; and it is in the power of district councils, by school-notification (p. 32), isolation (p. 50), disinfection (p. 63), laboratory-diagnosis (p. 64), and supply of antitoxin, with the help of medical men and school-teachers, to do it.

ENTERIC (TYPHOID) FEVER.—This disease showed a slight decrease in notifications, from 43 to 27 in the Urban and from 23 to 16 in the Rural Districts. The frequent light rain throughout the year may have had something to do with it. In 1898 and following years the number of cases notified have been 170, 250, 142, 117, 61, 57, 63, 56, 66, and 43.

The fatality, however, in the Urban Districts, although the lowest since it stood at 11 per cent. in 1899, is still high at 11·1; while that in Rural Districts, which was 23 per cent. in 1899, is 12·5, the highest figure in any year since, but one. The death-rate throughout the County from this disease, viz. ·02 per 1000 inhabitants (the same both for Urban and Rural), compares well with the ·06 for Rural England.

Improvements in sanitation and especially in the water-supply and the knowledge of the danger arising from sewage-polluted oysters and

other shell-fish are partly responsible for this reduction, which it may be hoped is permanent; but we have no means of arresting the disease, when once it is declared, except good nursing; and we know that it may be spread by contact, by dust, and by flies from refuse-heaps; so that the need of thorough isolation, street-watering, and scavenging is all the more urgent.

One case at Bishop's Stortford was attributed to oysters eaten at Clacton; one at Watford to drinking water outside the district. Another Watford case with two in Bushey and one each in East Barnet Valley and St. Albans was imported. One in* Ware was attributed to the leakage of sewer-gas into the larder from defective drains.

The conclusions to be drawn are the need of pure food and water, good scavenging, sound drains, and a good isolation-hospital. Attention is also called to the dust-problem. See p. 98.

INFLUENZA.—This disease not being notifiable in any District, the only possible conception of its prevalence is to be made from the death-returns and by general rumour, reported by the District Medical Officers. In the Urban Districts 53 deaths are reported as against 32 in 1906; in the Rural Districts 29 against 10. Of the former 7 are from Hemel Hempstead, and 5 each from Hertford and Watford; of the latter 8 are from the Hitchin, 6 from the Watford, and 4 from the Hertford Rural District.

Deaths from this cause have previously diminished of recent years, the returns in 1898 and following years being 69, 73, 163, 41, 101, 39, 37, 33, 42, and 82. As in other diseases, there is a certain rhythm in the epidemics, and in the Report for 1905 I pointed out that "a return of the disease in severer form is to be expected."

"The epidemic," it was remarked in last year's Report, "although it has had a wide sweep, has not been of the most severe type, and has not made an appreciable impression on the death-rate; it had not reached its height at the end of the year" 1906. In 1907 it certainly showed a great increase, both of severity and extent.

During the present year the prevalence of influenza has again been severely felt in the County, as in London. Since we have no specific means with which to fight it, the strictest attention must be paid in the schools and outside to every cold, and the infectivity of it recognised and combated by home-isolation and frequent through-ventilation of rooms occupied by the sick. Living-rooms should be turned out at regular intervals and every particle of dust removed; and another point is added to the argument for at least a weekly scrubbing of school-floors.

PUERPERAL FEVER.—From this cause only 5 cases were notified

and 3 deaths registered. The notifications were received from Rickmansworth and Ware Urban, and from Hertford, St. Albans, and Ware Rural Districts. In 1900 and following years the numbers of cases notified have been 14, 14, 9, 12, 8, 5, 10, and 5, with corresponding deaths 8, 7, 6, 3, 6, 2, 8, and 3; moreover, there is reason to believe that cases occur and die not infrequently without being notified. On occasion, also, the disease is signed up under other names. Medical practitioners may be reminded that both the Royal College of Physicians and the Obstetrical Society of London have expressed their opinion that for "notification purposes the expression should be taken "to include Septicæmia, Pyæmia, Septic Peritonitis, Septic Metritis, "and other acute septic inflammations in the pelvis occurring as the "direct result of childbirth."

For practical purposes in this County the definition adopted by the North-Western Branch of the Society of Medical Officers of Health is recommended, viz., "all cases in which, within seven days after the "birth of a child, alive or stillborn, the mother shall have a rigor "with attendant illness or a rise of temperature exceeding 100·4° F. "with quick pulse maintained for a period exceeding 24 hours, without "any obvious cause other than the puerperal state."

The condition usually notified under this name is one of general septic infection, due most frequently to an uncleanly midwife or woman-help, and amongst such cases the mortality always runs high. It is an imperative necessity, therefore, to make every possible use of "The Midwives' Act, 1902," to get rid of ignorant and uncleanly midwives, if possible before they have conveyed death to any of their patients, and to ensure cleanliness especially in *bonâ-fide* midwives who remain.

Attention is directed to the Report of the Inspector of Midwives on p. 137, and it is to be hoped that "The Midwives' Act, 1902," now being actively administered by the County Council, will have amongst other effects that of removing this disease from the list of causes of death. Under this Act (see p. 140) any registered midwife attending such a case is bound to call in medical aid and send notice of the fact to the County Council. She is then visited by the Lady Inspector of Midwives. Unregistered women acting as midwives, who are the chief danger, will, it is hoped, pass out of existence in 1910.

Cases not obviously due to registered midwives can only be dealt with by the District Authority under the Notification and Public Health Acts, information of their occurrence only reaching the County authorities officially by the Annual District Reports during the following year. But the weekly system now initiated of voluntary notification by District Medical Officers to the County Medical Officer (see p. 53)

will help, it is hoped, in an earlier control of dangerous midwifery practice.

ERYSIPELAS.—From this disease 142 cases were notified and 5 deaths registered. For 1898 and subsequent years the notifications have numbered 168, 244, 179, 168, 157, 136, 156, 186, 198, 142; the deaths 2, 12, 10, 12, 9, 4, 5, 10, 8, 5. It is curious that here, too, in a disease very slightly infectious, there is the same marked wave of prevalence as in the most infectious scarlet fever, although the wavelength appears longer, extending over eight or nine years instead of five. Watford with 2 cases, Stevenage with 13, Cheshunt with 11, and Hitchin with 10, were the Urban Districts most affected, and St. Albans, Ware, and Watford Rural Districts had 9 cases each.

The disease is one of poverty and dirt, due to a microbe allied to those of suppuration, and it has notably diminished during the past century. The chief preventive measures are personal and domestic cleanliness and general sanitation.

ISOLATION-HOSPITALS.

Their value.—In the Annual Report for 1906 a summary was given of a memorandum presented to the Council in October, 1906, on the value of isolation-hospitals.

It was pointed out that such an hospital was intended to serve a triple purpose, viz. :—

- (1) The limitation of an epidemic ;
- (2) The care of the individual patient ;
- (3) The convenience of his friends and the commercial security of the community.

The fulfilment of the first purpose only has been doubted, and that only by a small minority of professional opinion, and in respect of one disease only, namely, scarlet fever.

A detailed investigation into this matter, under conditions closely parallel to those existing in Herts, has recently been made by one of the most experienced County Medical Officers of Health, Dr. Seaton, County Medical Officer for Surrey. His report includes 24 pages of charts, diagrams, and statistics, most carefully prepared ; and in the absence of any other figures, Dr. Seaton's facts must be taken as the only detailed evidence yet produced on the subject, and his conclusion as the most complete pronouncement yet made.

The report deals with scarlet fever only ; it notes the periodic variations in fatality of the disease—the seasonal ripple, the five-yearly wave, and the 30-yearly swell of your Memorandum ; the ever-diminishing intensity of the disease since 1870 ; the fact that some districts with isolation-hospitals show less diminution of the disease than others with no such accommodation. “But,” he reports, “we are in a position to show that illness without hospitals would have been more extensive than it has been.” The cause of the comparative failure of isolation-hospitals to effect the expected extermination of the disease is shown to be due to—

- (1) Errors in diagnosis, cases of supposed scarlet-fever being sometimes sent to hospital when not really suffering from that disease ;
- (2) The discharge of cases while still in an infectious state, leading to “return cases,” infected by their return home ;
- (3) The non-recognition till too late of mild cases, allowing them thus to spread infection at home and in school before they or other children, the victims of their infection, are notified and sent to hospital.

Allowing for these causes of failure, it is shown that even in the cottages of the poor, in a comparison of 1,200 cottages in the same district, cases sent to hospital are associated with far fewer secondary cases than cases kept at home.

In other words, scarlet-fever is an infectious disease and cannot be properly isolated in the lives and homes of the poor.

In order, therefore, to reduce the prevalence of the disease, with its resulting dangers (a mortality in 1906 of 100 per million persons living in England and Wales) and inconveniences to the community, the following proposals are made :—

(1) Greater care must be taken before sending and admitting patients to hospital ;

(2) "Return-cases" must be prevented by more careful discharge and supervision after discharge ;

(3) Infectiveness of patients may possibly be more quickly reduced by better ventilation of wards and by open-air treatment, and overcrowding must be prevented at all costs ;

(4) Cases hitherto missed must be no longer overlooked ; and notification and removal to hospital must be more promptly effected.

Considering the marked reduction of prevalence during school-holidays, attention should be concentrated on the schools as the chief source of hidden infection, and teachers should be taught and encouraged to observe the earliest signs of the disease in its mildest form. Compulsory education should, without doubt, be supplemented by compulsory school-notification of children's infectious disease.

In addition efforts must be made to educate the public, perhaps by a leaflet to be suggested to Local Sanitary Authorities by the County Council, and attention should be directed to the purity of the milk-supply, to which certain outbreaks have been traced.

The attention of Sanitary Authorities may be drawn to Memoranda issued by the Local Government Board in 1900, with regard to loans for the purpose of erecting isolation-hospitals, the constitution of joint hospital districts, proceedings under "The Isolation Hospitals Act, 1893," and the site and construction of such hospitals, with detailed plans and drawings.

Finally, as regards hospital policy, the County Council should continue to urge the more complete provision of hospital accommodation throughout the County ; and I would further suggest that much unnecessary expense might be saved by the adoption of an uniform system of keeping hospital accounts, as recently adopted in Derbyshire and at the instigation of King Edward's Fund in the large London hospitals, which are reported thereby to have saved some £100,000 per annum. At present there is no means of comparing the expenses of isolation-hospitals in Hertfordshire.

SMALLPOX ISOLATION-HOSPITALS.

Possibly half the districts have some sort of accommodation for a few cases, as in Watford and Rickmansworth; Bishop's Stortford, Hadham, and Sawbridgeworth; Tring and Berkhamstead; Hertford, Hoddesdon, and Ware; and the Baldock, Stevenage, and Hitchin Districts, although in several cases of an indifferent kind, and in several only at the expense of their already insufficient accommodation for other diseases. Buntingford, in fact, proposes to use its scarlet fever hospital for this purpose, if necessary and if possible. In 1901 the Hatfield District Council provided tents for the reception of cases of smallpox, if the need should arise; and in the following year the East Barnet Valley and Hemel Hempstead Urban District Councils fitted up cottages on their respective sewage-farms for the same purpose. St. Albans City and Rural District and Harpenden having lost control of the two beds formerly at their command at Clare Hall, and rejecting an offer to combine with the Middlesex Joint Hospital Board, now in possession of the Hall, on financial grounds have decided to erect an hospital of twelve beds for the purpose. Local objection was taken to the ground belonging to the Corporation of St. Albans at Crouch Hall, near Redbourn, being put to this use; and an alternative site has been offered to the Corporation by Redbourn and been accepted. Plans are being prepared. It has been suggested that Hemel Hempstead might take beds in this hospital and so set free its two cottages kept at present for this purpose. Royston would isolate at Watford, 40 miles off.

This is a most serious matter. No adult person has anyone but himself to blame if he neglects re-vaccination and suffers accordingly. But it is sheer cruelty to expose children, for the sake of an often fictitious parental conscience, to the lifelong disfigurement and severe dangers of smallpox. For them smallpox hospitals are a necessity; it is their parents, not the general ratepayer, who should bear the burden.

The smallpox hospital at North Mimms, an historic institution 150 years old, Jenner's original hospital at Highgate, and the first of its kind in England, moved out of Highgate, owing to the increase of population, ten years ago, and replaced a Jesuit community at Clare Hall. This has now been bought up by a combination of Middlesex Districts, after receiving sanction for a loan of nearly £40,000, which was opposed by the Barnet Urban District Council on the grounds of the danger of infection to Barnet, through which most of the ambulances must pass on their way to Clare Hall.

Until last year many Herts districts had first claim on one or two beds apiece at Clare Hall at £25 per bed. This arrangement is now at an end for all these districts, and the matter should be seriously considered by the County Council, as the greater part of the County is unprovided against an outbreak.

GENERAL FEVER HOSPITALS.

TABLE 25.—Removals to Hospital. (For detail in 1907, see Table 24, p. 37.)

Urban Districts.	Removals.							Notifications.								
	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.
1. Baldock ...	—	—	—	—	—	—	—	—	5	2	10	2	5	1	4	38
2. Barnet ...	0	1	19	11	3	1	5	11	33	30	34	24	16	14	29	41
3. Berkhamstead ...	9	3	5	7	3	12	2	5	25	14	13	9	5	15	93	32
4. Bishop's Stortford	54	24	20	7	10	11	14	21	111	33	27	13	14	4	20	27
5. Bushey ...	—	—	—	—	—	—	39	17	—	—	—	—	—	—	68	37
6. Cheshunt ...	30	43	46	45	33	18	9	56	84	131	105	59	42	24	23	78
7. East Barnet Valley	0	0	6	2	9	19	23	12	67	58	36	21	40	57	111	96
8. Harpenden ...	0	36	5	0	3	1	16	11	7	50	15	8	7	7	28	12
9. Hemel Hempstead	2	32	22	6	1	74	56	39	22	76	32	18	8	116	105	52
10. Hertford ...	15	99	47	20	33	14	32	15	18	106	73	25	35	17	46	21
11. Hitchin ...	—	—	—	—	—	—	—	—	20	101	89	68	54	24	57	23
12. Hoddesdon ...	20	13	27	7	12	6	12	12	25	17	43	8	16	12	18	17
13. Rickmansworth ...	15	42	49	40	19	38	49	15	20	49	52	51	27	45	79	19
14. Royston ...	—	—	—	18	1	5	1	1	1	8	7	50	1	11	5	4
15. St. Albans ...	22	84	74	8	18	15	19	133	42	124	85	22	40	31	82	193
16. Sawbridgeworth ...	—	2	3	3	3	0	12	9	—	4	4	3	7	4	15	11
17. Stevenage ...	—	—	—	—	—	—	—	—	1	12	4	0	1	11	202	32
18. Tring ...	2	37	15	4	13	5	14	36	9	54	25	5	20	4	20	55
19. Ware ...	47	26	20	7	0	3	1	1	38	41	61	9	1	4	5	5
20. Watford ...	234	194	310	240	228	168	276	394	278	224	373	282	267	210	363	500
Urban Totals ...	450	636	668	425	389	390	580	788	806	1134	1088	677	606	611	1373	1293
Rural Districts.																
1. Ashwell ...	—	—	—	26	12	12	15	10	6	6	32	29	13	13	29	15
2. Barnet ...	—	—	7	7	4	0	2	12	8	20	35	19	8	14	10	36
3. Berkhamstead ...	13	19	4	3	1	15	6	12	16	25	6	7	5	16	27	26
4. Buntingford ...	5	13	8	8	1	15	30	18	11	15	9	8	4	17	32	19
5. Hadham ...	21	9	17	5	3	12	5	24	23	11	26	6	5	12	8	29
6. Hatfield ...	0	8	0	5	5	2	3	5	11	24	27	20	13	6	10	24
7. Hemel Hempstead	8	16	4	3	3	55	11	4	25	36	10	12	6	76	35	23
8. Hertford ...	46	45	50	28	4	7	9	13	51	57	81	33	5	7	13	19
9. Hitchin ...	—	—	—	—	—	—	—	—	34	98	93	34	17	34	20	60
10. St. Albans ...	7	67	85	5	17	36	19	39	18	123	103	15	35	49	47	75
11. Ware ...	29	28	32	43	17	24	33	16	33	54	73	52	24	26	40	35
12. Watford ...	65	73	122	41	30	85	59	73	95	161	169	83	69	160	102	99
13. Welwyn ...	3	8	1	0	0	1	4	1	5	10	6	5	3	1	4	1
Rural Totals ...	196	286	330	174	97	264	196	227	336	640	670	323	207	431	377	461

GENERAL FEVER HOSPITALS.

The detailed Table 24 as to cases removed to hospital for each disease from each District in 1907 has been given on p. 37. Table 25 gives the total numbers removed out of the corresponding numbers notified in each District during the past eight years. The proportion of those removed in the Urban to those in the Rural Districts has been considerably affected by the transfer of Bushey Urban from Watford Rural District in 1906. The growth of First Garden City in Hitchin Rural District must also be remembered. The disproportionate increase of Urban notifications in 1906 was due to some extent also to 184 cases of measles notified in Stevenage, which this year reports only 4 such cases.

URBAN DISTRICTS.—1. *Baldock*.—None. Joint Hospital Board with Hitchin Urban and Rural and Stevenage Urban. The present state of affairs is exceptional and most unsatisfactory.

Early in 1900 Dr. J. A. Turner, the County Medical Officer, reported his opinion that hospital accommodation ought to be provided for these Districts.

In 1901 a Joint Hospital Board was created under "The Public Health Act, 1875," by order of the Local Government Board.

In 1904 a site of seven acres was bought, situated 2 miles south of Hitchin on the main London Road. Plans were prepared by Mr. Adams for an hospital of 22 beds, 12 for scarlet fever and 5 each for diphtheria and enteric, at a cost of £10,000. Sanction to borrow the money was applied for to the Local Government Board, which held an inquiry at Hitchin on December 12th, 1907. Representation being made at the inquiry that accommodation for cases of scarlet fever was not at present necessary, the Board decided that:—

"If, on consideration, the Joint Hospital Board decide to
"postpone the erection of the scarlet fever pavilion, the Board will
"not, on that account, refuse to sanction a loan for the remainder
"of the Hospital Scheme, provided that the arrangement of the
"hospital buildings on the site is so maintained as to permit of the
"subsequent erection of the pavilion in question."

Fresh plans were made for an hospital on these lines, but as it would cost £5,000, opinions were divided and no further steps were taken.

In March, 1906, therefore, the County Medical Officer held an inquiry at Hitchin, and reported that the District Councils were in default.

In August, 1906, an inquiry was held on behalf of the County Council by Messrs. Rutherford, Marchand, and Longmore, who found

the Joint Hospital Board divided in mind and at a loss what policy to pursue. The County Council, having no powers over a Joint Hospital Board constituted under "The Public Health Act, 1875," resolved to petition the Local Government Board to repeal their Order, constituting this Board. This would enable the County Council to constitute a Joint Hospital Committee under "The Isolation Hospitals Act, 1893," and to insist on effective action. The matter was reported accordingly to the Local Government Board in 1906, but no reply has been received from the Board.

The matter calls for further action without delay. It has been shown on p. 45 that a serious outbreak of diphtheria at Offley last Winter caused 26 cases to be notified, with one death; that this outbreak was met with a free use of antitoxin, and the employment by the Hitchin Rural District Council of the District Nurse and an assistant nurse engaged for the purpose. But the expense of the latter has been surcharged by the Auditor of the Local Government Board; and, although taken over by the Guardians, it involves disfranchisement to those who employed the nurse and are unable to repay their share of her cost. At present, in fact, the law does not allow sanitary authorities to treat epidemics by home nursing, except as an adjunct to their employment in an isolation-hospital. This is a case for the Legislature.

The need is still greater in Garden City, which has a growing industrial population, and is already desirous, in fact, of erecting a small isolation-hospital. Whatever the doubts that may be thrown on the influence of such hospitals in curtailing epidemics in rural districts, there is none as to their necessity in an industrial community.

It will have to be considered whether it is more or less desirable and economical, with the recent growth of Garden City, to build a single hospital on the central site already bought for the purpose. Possibly Garden City may cut the Gordian knot by themselves erecting an hospital and taking in cases from the other districts as paying guests.

I must again, therefore, report under "The Isolation Hospitals Act, 1893," section 6, that an hospital ought to be established for Baldock, Hitchin, and Stevenage Urban, and Hitchin Rural Districts; and I would ask that the Committee of the County Council, appointed in 1906 for the purpose of this inquiry, should press for action by the Local Government Board, should ascertain the attitude of Letchworth Parish Council, and should finally report to the County Council, which would then make an order under Section 9 of the above Acts.

2. *Barnet*.—Temporary iron hospitals in May's Lane, one with twelve beds for the isolation of one disease only at a time, erected on sewage-farm in 1902, another in course of erection. The existing

hospital has only been able to isolate 35 cases in the last year, out of 173 notifications in the three constituent districts; only 144 out of 641 notifications during the six years of its existence, a percentage of 22·5, which may be compared with that of 76·4 for an equal number of notifications in the constituent districts of the admirable hospital at Watford.

A Joint Isolation Hospital District for East Barnet Valley Urban and Barnet Urban and Rural Districts was constituted by order of the County Council, dated January 27th, 1902. For the combined population of 26,119, with assessable value £187,300, the County Council required an hospital for twenty-eight beds, to be built by March 31st, 1904. An architect was engaged to draw up plans; a site of some $2\frac{1}{2}$ acres was purchased; and the plans, after conference with the County officers, were approved. In view of the Local Government Board's opinion (see *Hitchin*, p. 53) the County Council allowed a reduction to sixteen beds, on condition that the hospital was built by June, 1907. Meanwhile, however, the Joint Hospital Committee, on the score of expense, resolved to build their hospital of wood and iron out of current rate, but to apply to the Local Government Board for sanction to a loan for foundations, road-making, and other permanent work. The County Surveyor had an interview with a Sub-Committee of the Hospital Committee on July 19th, 1907, and explained the probable requirements of the Local Government Board in the matter of foundations, etc.; but the Committee considered these requirements unnecessary, and decided to provide this too out of current rate. They paid off their architect at £355, and engaged a fresh architect, with a Clerk of the works, paid by themselves, signing a contract with Messrs. Rowell & Co., of Westminster, for the proposed building. By the courtesy of the Hospital Committee, whose Chairman and Medical Officer met the County Medical Officer on a visit paid to the spot on June 2nd, 1908, the following particulars can be given:—

The buildings consist of administration block, three blocks for scarlatina, diphtheria, and typhoid, a laundry block, with disinfector chamber, mortuary, and ambulance shed attached. Accommodation is provided for 8 cases of scarlatina, 4 of diphtheria, and 4 typhoid.

The *Administration Block* is placed next and parallel with the road—a few feet too close to the boundary fence—and provides nine bedrooms for matron, nurses, and caretakers (married couple), dining-room for nurses, three sitting-rooms, room for medical officer, kitchen, scullery, two rooms for stores and accommodation for coals, wood, etc., two bathrooms, and two water-closets. It is lighted by gas throughout. Hot water for baths is supplied by kitchen boiler; open fireplaces are provided in each bed and sitting room. The water supply is from the

main, and is stored in cisterns at each end of the building; covers are provided for the cisterns, and they are easy of access for cleaning purposes.

The *Scarlatina Block* is situated behind and parallel to the administration block. The four-bedded wards have each a cubic capacity of 8,151 cubic feet approximately, excluding furniture; the inside measurements being taken as 38 ft. 8 in. by 19 ft. 1 in. by 11 ft. Between the wards are a duty-room, small kitchen, pantry, and store. At each end a cross ventilating lobby leads to a bathroom on one side, and sink and w.c. on the other. It is proposed to heat all the wards by slow combustion stoves—"The Emperor" type, largest size, with ascending flue. Water for baths heated by geysers. Duty-room heated by small asbestos gas-stove.

The *Diphtheria and Typhoid Blocks* are situated parallel to the western boundary. The wards have a cubic capacity of about 3,542 cubic feet, exclusive of furniture; actual inside measurements, 22 ft. 9 in. by 14 ft. by 11 ft. It is proposed to place a bed and a cot in each diphtheria ward and two beds in each typhoid ward. A duty-room is placed centrally and the sanitary annexes with cross ventilating lobby are similar to those in the scarlatina block on a slightly smaller scale.

The *Laundry Block* is situated behind the scarlatina block, at right angles to and the necessary distance from the eastern boundary. An equifex disinfecter 3 ft. 6 in. high has been provided, a foot less in height than the one suggested by the Medical Officer after consultation with the County Medical Officer, and approved by the Committee. This has apparently been arranged by the architect after consultation with the makers. The disinfecter was delivered to the Contractor on April 27th last, and since that date to the present time it has been lying on the ground covered by a tarpaulin.

A van for conveying articles to and from the disinfecter will be provided.

Ventilation has been provided for by open windows throughout, and outlets of the Boyle type in the roofs. The Committee did not consider that Tobin's tubes, as suggested by the Medical Officer, would be required. The windows, excepting the fan-sashes above, have been fixed. This is to be altered, and all will be made to open. The frosted glass in the administration block is to be removed and clear glass substituted.

The necessary roads will shortly be completed.

No discharge, observation, or convalescent wards have been provided. It is stated that the Committee intend to proceed to the establishment of these at an early date, after the work that is already undertaken is finished.

A few general comments will suffice for this Report.

The buildings are erected on the lower end of the site, adjoining May's Lane. This is unfortunate, as when seen in winter this part of the site was sodden, all the water running down over the clay soil from the upper end of the field; and the site was expressly sanctioned on the understanding that the building would be at the upper end. With foundations only 2 feet deep and only a 2 feet ditch, which is to be dug across the site to divert water from the upper part, it is to be feared that the buildings and grounds will be inconveniently damp.

The walls consist of corrugated iron, with a 4 inch air-space covered in with creosoted felt $\frac{1}{16}$ inch thick and matchboarding. This felt is far too thin and flimsy, and, being creosoted, adds to the danger from fire. The whole place would, of course, in any case, burn like tinder. Moreover, the matchboarding hitherto erected, even where re-erected after condemnation of the first boarding by the Committee, is of inferior quality and ill-fitting, so that along many seams there is only the thickness of the tongue, $\frac{1}{4}$ inch, and felt, $\frac{1}{16}$ inch, to keep out the cold. Wood so little seasoned will be liable soon to warp and shrink. It will be difficult to keep such a building warm in winter or cool in summer. There were signs also of rain coming down through the ventilators; and the fixed windows similarly seem to show lack of care in construction. This is evidenced by the forbidding interior design of the administrative block; by the duty-room in the smaller blocks preventing the admission of stretchers except at the ends; by the level of the road 1 foot below that of the ambulance-shed; and by the structure and design of the roads hitherto made.

It is to be presumed that the inadequate dimensions of the steam disinfectors are a mistake between the architect and contractors, and that the Committee will insist on having what it ordered. It is regrettable to consider that the Medical Officers concerned have not been consulted in the matter throughout, and that they could have saved the Committee much unnecessary expense.

Although promised by the contractors before the end of April, it is unlikely to be ready for a month or more yet. It is difficult to believe that the Committee and the ratepayers will feel that this hospital is adequate for the purpose required of it.

3. *Berkhampstead*.—Joint hospital with Rural District at Aldbury, between the town and Tring. Eight beds, arranged for one disease only. For further details see Report for 1906.

Arrangements have existed with Tring Urban District, by which the Aldbury hospital received all cases in 1902-3 of smallpox, since then of scarlet fever, from all three districts, and the Tring hospital all other

infectious cases. The accommodation, however, was insufficient, and after enquiry by the County Medical Officer and by the County Council in 1904-5, the Aldbury Hospital Committee were in March, 1907, left to act as they thought best. A strip of land was bought last year for an isolation-block of eight beds in four wards with necessary outbuildings, but no steps have been taken as to building. Fortunately there have been fewer cases recently.

4. *Bishop's Stortford*.—Arrangements with Joint Hospital Committee for Sawbridgeworth Urban and Hadham and Stansted (Essex) Rural Districts. Their hospital, formerly belonging to Hadham, is in this district, and was enlarged in 1902. It will accommodate scarlet-fever, diphtheria, and, if necessary, enteric. No information is given as to the nature or sufficiency of this accommodation.

5. *Bushey*.—See District No. 20.

6. *Cheshunt*.—Site acquired at Dig Dag Hill in 1896; temporary hospital erected and used for smallpox in 1902, now for scarlet fever. Inquiries—(a) For Local Government Board, by Dr. Bulstrode, October 17th, 1902: a loan sanctioned of £1,124 for land, furniture, sewerage, water-supply, gas-fittings, and fencing, but not for temporary buildings. (b) For the County Council, by the County Medical Officer, December 9th, 1902: County Council passed a resolution on May 4th, 1903, to the effect that if the Cheshunt District Council should erect the administrative, diphtheria, and enteric blocks before the end of 1904, and the scarlet-fever block before the end of 1905, the County Council would go no further in the matter; but that otherwise it would be their duty to proceed under "The Isolation Hospitals Act, 1903." (c) For Local Government Board, by Dr. Farrar, September 25th, 1903: a loan sanctioned of £6,081 for the building of a permanent hospital for cases of diphtheria.

This building is now in use for diphtheria, and is said to be very good, with ten beds (four and six) and two single wards, opening out from the large wards, but capable of isolation for doubtful cases. The administrative block contains matron's room, nurses' dining-room, office and laboratory, kitchens, etc. There is a new laundry with houses for two carts and a steam-disinfector; a new mortuary, large and commodious; dairies, etc.; a discharging-room with bath, opening only into the outside air; and a porter's lodge, ornate but not very commodious.

The staff consists of matron, four permanent and two occasional nurses, and several servants. The Medical Officer of Health, however, has no responsibility in the management of the hospital; and it would appear from his report that the steam-disinfector is not yet in use.

The temporary hospital is still used for scarlet fever, and has

accommodation for nine adult patients. The County Council may be advised not to press for completion of the permanent scarlet-fever block until the other new buildings have proved their worth. If this be eventually carried out on the same scale, the Cheshunt Council may well be congratulated on the hospital they have provided. As a result only 2 cases have had to be sent to Hertford and none to Enfield. The value of such an hospital, however, depends more on administration and good management than on its structure; and it is to be hoped that responsibility in the matter may be definitely thrown upon the District Medical Officer of Health, with whose work it is essentially associated.

7. *East Barnet Valley*.—See District No. 2.

8. *Harpenden*.—The Sisters' Hospital at St. Albans takes all cases of scarlet fever from the City and Rural District, and from Harpenden. It was given to the city by Sir J. B. Maple in 1893, and consists of an administrative block, a ward-block with thirty-six beds, and a block containing steam-disinfector, laundry, and mortuary. Bath-rooms and a discharging-room were added in 1903. The permanent staff consists of matron, two probationers, two maids (one for laundry), and a non-resident porter. The wards are not large enough to contain a total of more than eighteen beds, and the accommodation for nurses insufficient. Only one disease can be isolated at a time, and the urgent need of accommodation for the isolation especially of diphtheria and enteric fever and of an observation-block have been generally recognised for several years.

It will be remembered that "The Isolation Hospitals Act, 1893," does not extend "without the consent of the Council of the borough to any borough containing, according to the census for the time being in force, a population of 10,000 persons or upwards" (sec. 2). The City of St. Albans is such a borough.

Geographically, however, St. Albans City is the centre of the St. Albans Rural District, in which Harpenden is also situated; and the Town Clerk of St. Albans has courteously supplied me with the following information:—

Since 1894 the management of the hospital has been in the hands of a Joint Committee, representing the Town Council, the St. Albans Rural District Council, and the Harpenden Urban District Council, and the expenses of the management and maintenance thereof are borne by the three Councils in certain proportions as specified in an agreement entered into by such Councils with respect to the joint management of the hospital.

Negotiations have taken place between the three Councils for the provision of further hospital accommodation, necessitating the revision

of the said agreement in many particulars, and the terms of the new agreement have been practically settled.

Under the new agreement the Corporation are to provide the necessary land (about 1 acre in area) adjoining the Sisters' Hospital grounds, and to erect additional hospital accommodation for typhoid and diphtheria patients. Plans of the building have been prepared and approved by all three Councils, and the work, it is anticipated, will be commenced shortly.

9. *Hemel Hempstead Borough*.—Joint Hospital Board with Rural District, formed by Provisional Order under "Public Health Act, 1875," confirmed by Parliament in 1906, to consist of Mayor and four elected Town Councillors with Chairman and two elected Councillors from the Rural District. A four-bedded hospital was erected here by the Rural Sanitary Authority in 1887, after inquiry by the late Sir R. Thorne-Thorne, on a small site, and on this there had further been built a twelve-bedded temporary iron hospital. The site is therefore overcrowded, the accommodation for nurses too small, and it is only safe to admit one kind of infectious disease here at a time. There are a brick lodge and a separate block containing ambulance shed, with good horse-ambulance, laundry, and lodge. There are one bed sitting room for the only nurse, who is in charge, earth-closets, and no disinfecting stove. There was a serious epidemic in 1905, and by December of that year 129 cases had been admitted. The inadequacy of the hospital was obvious. Use was made of two cottages and an iron hospital erected on the sewage farm for smallpox in 1902 but never previously used, and two big marquees from Winslow and one from Watford were also hired for the purpose.

A Joint Committee with the Rural District had meanwhile been formed by agreement in 1900, and after several Local Inquiries in 1903-5 by the County Council, which has no power in the matter over the Borough, the two Authorities decided to apply to form a Joint Hospital Board, to extend their site by a further 2 acres, and on it to erect a permanent administrative and two isolation-blocks. For this purpose application was made for a Provisional Order for compulsory powers to purchase the land, and on February 27th, 1908, the Local Government Board held a Local Inquiry, and subsequently issued a Provisional Order, which now awaits confirmation by Parliament.

10. *Hertford Borough*.—Joint Hospital Board with Hertford Rural, Hoddesdon Urban, and Ware Urban and Rural Districts. Eight of the new beds are reserved for Hatfield.

Cases of enteric fever are usually nursed at the Hertford Infirmary, but can be treated at the Isolation Hospital if necessary.

The hospital for the treatment of scarlet fever and diphtheria occupies a fine site of about six acres at Gallows Hill, on high ground, now entirely in the Hertford Rural District, and overlooking the Lee Valley, between Hertford and Ware. Increased by twenty beds in 1904, it now contains forty-six beds for a combined population of 46,761. It consists of two ward blocks for twelve diphtheria (two in separate rooms for tracheotomy cases) and fourteen scarlet-fever patients respectively; a new convalescent ward for ten cases of scarlet fever; an old observation block with six beds, and a new observation block with four; an administration building, mortuary, laundry, drying-rooms, a Reck's steam-disinfector and discharging-room, a porter's lodge, and a bacteriological laboratory for the Medical Superintendent, who is Medical Officer of Health to the combined districts of East Herts and Essex. There is also a separate medical attendant, Dr. J. Burnett Smith, M.B., C.M.

This hospital is a striking instance of the value of good isolation-accommodation, and the cost of maintenance is relatively small.

11. *Hitchin*.—See No. 1, Baldock.

12. *Hoddesdon*.—Hertford Joint Hospital; see No. 10, Hertford.

13. *Rickmansworth*.—Watford Joint Hospital; see No. 20, Watford.

14. *Royston*.—A Joint Hospital Board was formed in 1900 with Ashwell and Melbourn (Cambridgeshire) Rural Districts, and a good hospital in Garden Walk, Royston, was opened on April 1st, 1903. An isolation-hut on the hospital ground has been assigned for the purposes of a discharging-room. There is a steam-disinfector. The only approach to the hospital is by a miserably-kept private road. It would be well to inquire if the approaches have been improved, and if not, what steps are contemplated for the purpose.

15. *St. Albans City*.—The Sisters' Hospital; see No. 8, Harpenden.

16. *Sawbridgeworth*.—See No. 4, Bishop's Stortford.

17. *Stevenage*.—See No. 1, Baldock.

18. *Tring*.—A hospital containing eight beds in two blocks, each containing two two-bedded wards; together with an administrative block, laundry, ambulance-shed, mortuary, and Thresh's disinfector. Thus two diseases can be treated at the same time. These blocks have verandahs on the south wall, with conveniences outside. For present arrangements with other districts, see No. 3, Berkhamstead.

19. *Ware*.—Hertford Joint Hospital; see No. 10, Hertford.

20. *Watford*.—Watford Joint Hospital for Watford Urban and Rural and Bushey and Rickmansworth Districts, situated on land formerly in the Rural and now, since March 25th, 1904, in the Urban District of Watford. Twenty-four beds were added in 1904, making up a total

of sixty-six for a combined and rapidly-growing population of 64,997. It now consists of one large and three isolation wards for 21 cases of diphtheria, three isolation wards for 5 cases of enteric fever, and two large blocks and one isolation-block for 40 cases of scarlet fever. It is in the last that cases of scarlet fever are received and kept for the first fortnight, so as to prevent any chance of further infection of the older cases. All blocks are now well heated and fitted with electric light. There is a steam-disinfector. The home has been enlarged by a sitting-room for nurses and fourteen bedrooms for the medical resident and other members of the staff. 500 cases were treated during 1907, viz., scarlet fever, 293 (in 1906, 311); diphtheria, 201 (in 1906, 128); enteric fever, 6 (in 1906, 13). The Watford Urban Report refers to the serious results of delay in sending diphtheria patients into hospital. See remarks above, p. 45. The Watford Rural Report again congratulates the contributing authorities "upon the possession of so useful an institution" and its able management.

RURAL DISTRICTS.—1. *Ashwell*.—See Urban No. 14, Royston.

2. *Barnet*.—See Urban No. 2, Barnet.

3. *Berkhampstead*.—See Urban No. 3, Berkhampstead.

4. *Buntingford*.—A small iron hospital in the parish of Aspenden, dated 1899, capable of treating only one disease at a time. Administrative block with residence for caretaker and wife; two wards for two beds each; two rooms for a nurse; no discharge-block or steam-disinfector; and each patient treated by his own medical attendant. All the 18 cases of scarlet fever notified were removed to hospital. Fortunately no case of diphtheria or enteric fever occurred at the same time. A new bedroom has just been completed for the nurse. It is proposed to use this same hospital for smallpox should there be no other patient at the time.

5. *Hadham*.—See Urban No. 4, Bishop's Stortford.

6. *Hatfield*.—Arrangement with Hertford Joint Hospital Board for eight beds. See Urban No. 10, Hertford.

7. *Hemel Hempstead*.—See Urban No. 9, Hemel Hempstead.

8. *Hertford*.—See Urban No. 10, Hertford.

9. *Hitchin*.—See Urban No. 11, Hitchin.

10. *St. Albans*.—See Urban No. 15, St. Albans.

11. *Ware*.—See Urban No. 10, Hertford.

12. *Watford*.—See Urban No. 20, Watford.

13. *Welwyn*.—A small iron hospital of six beds for one disease only at a time, supplied with food, etc., from the workhouse close by—"a not altogether satisfactory arrangement." Space for 3 beds only. Pail-closets.

DISINFECTION.

Proper means for disinfection are of as great importance as those for isolation. It is essential to disinfect the sick-room and all contaminated articles, especially clothes, books, and toys. By a new method of formalin fumigation, proposed by Messrs. Evans and Russell, and strongly recommended by Professor Kenwood and Colonel Firth, R.A.M.C., 142½ grams of Potassium Permanganate are put into a metallic dish about 7 in. across and 3 in. to 4 in. deep, and twice the weight of formalin poured on, the room being sealed up for four to six hours. Chemical action takes place between the salt and one-fifth of the formalin, generating enough heat to volatilise the rest of the formalin. This may be recommended, for instance, for Ashwell, where the Medical Officer of Health reports the need of better methods.

“Formalin,” however, says Professor Kenwood, “is but one step of several which are necessary for the complete disinfection of the room and its contents, and the most important of these steps are the washing down with soap and a disinfecting solution of all those surfaces on which dust (and with it germs) can settle; and the removal of all articles into which germs can penetrate for steam-disinfection.” Colonel Firth sums up the question: “Carefully disinfect by steam all personal clothing, and merely trust to fresh air, soap and water to cleanse the room.”

Therefore every possible contaminated article must be treated in a *steam-disinfector*, which is absolutely sure.

Many districts appear to be devoid of any steam-disinfector, although the hospitals at Hertford, Watford, Royston, Tring, and Bishop's Stortford, the Sisters' Hospital at St. Albans, and, it is said, the new iron hospital at Barnet are properly equipped in this respect. The disinfector at Tring is insufficiently used; several Medical Officers of Health, as at Hemel Hempstead, Hitchin, and Buntingford, refer in their reports to the need of such an apparatus; and in the new buildings at Cheshunt the projected steam-disinfector is not forthcoming. The districts then devoid of a steam-disinfector are nine in number—Baldock, Berkhamstead, Cheshunt, Hemel Hempstead, Hitchin, and Stevenage Urban; Berkhamstead, Buntingford, Hatfield, Hemel Hempstead, and Hitchin Rural. In Hemel Hempstead the new hospital offers an exceptional opportunity. See p. 60.

The Council wrote last year to the Aldbury and Hemel Hempstead Hospital Committees to ask if they propose, in carrying out their extensions, to erect disinfectors, as would seem most desirable. This year I would urge their writing to the Cheshunt Hospital Committee

and urging the erection of a disinfectory; and it is advisable to consider this need in any hospital constructed for the Hitchin districts.

BACTERIOLOGICAL METHODS.

Arrangements for the examination of swab-specimens from doubtful cases of diphtheria have existed for several years in the Urban Districts of Bishop's Stortford, Bushey, East Barnet Valley, Hertford, Hitchin, Hoddesdon, Ware, Rickmansworth, and Watford, and in the Rural Districts of Buntingford, Hadham, Hertford, Ware, and Watford. The Councils of the remaining Districts do not appear to have granted any such facilities, although often urged to do so. In some of these Districts diphtheria antitoxin is provided free at the expense of the Councils, as at Cheshunt and Hitchin, and for repayment in kind, as in East Barnet Valley and Watford; in some the examination of blood for typhoid fever and of sputum for phthisis is also undertaken. The East Barnet Valley Council subscribe to the Clinical Research Association at Watergate House, Adelphi, Strand, W.C., and practitioners can thus get a fairly swift and trustworthy report on their specimens without charge. In Watford and Rickmansworth practitioners may have specimens examined for diphtheria at the Council's expense either at the Joint Hospital or at the Lister Institute of Preventive Medicine, Chelsea Gardens, S.W. It is desirable that similar facilities should be granted in every District in the County; and in Districts where they are already granted better methods should be adopted to make the fact known to the public, as suggested in the Report for Watford.

WATER-SUPPLY.

RAINFALL.

The influence of rainfall on mortality is considerable, a warm and dry summer, especially one with fewest wet days, favouring dust, decomposition of milk, and so epidemic diarrhœa; whereas a wet and cold winter favours the development of respiratory diseases.

The following tables of rainfall in 1906 were compiled at Bayfordbury in the *Hertford* Rural District, at Danesbury in *Welwyn* Rural District, at Preston in *Hitchin* Rural District, and at *Rickmansworth*. Rain-gauge—diameter of funnel, 8 inches; height of top above ground, 14 inches; above sea-level, 250 feet at Bayfordbury and Rickmansworth, 481 feet at Preston, and 400 feet at Danesbury.

TABLE 26.—RAINFALL, 1902-7.

IN THE EAST OF THE COUNTY.						IN THE CENTRE.					
<i>HERTFORD R.D.</i>						<i>WELWYN R.D.</i>					
(BAYFORDBURY).						(DANESBURY).					
Month.	Total depth.		Greatest fall in	No. of days		Total depth.	Greatest fall in		No. of days on		
	ins.		24 hours.	on which rain fell.		ins.	24 hours.		which rain fell.		
			ins.								
January ...	1'05	...	'53	...	8	1'11	...	'59	...	7	
February ...	1'36	...	'34	...	14	1'45	...	'48	...	15	
March ...	0'99	...	'19	...	12	0'99	...	'25	...	9	
April ...	2'81	...	'39	...	17	2'84	...	'49	...	14	
May ...	1'98	...	'29	...	20	2'50	...	'84	...	13	
June ...	1'87	...	'55	...	18	2'33	...	'37	...	21	
July ...	1'74	...	'54	...	16	2'56	...	'70	...	16	
August ...	1'79	...	'32	...	17	1'85	...	'57	...	14	
September ...	0'57	...	'15	...	8	0'51	...	'19	...	6	
October ...	3'97	...	'83	...	24	3'97	...	1'16	...	17	
November ...	2'40	...	'44	...	18	2'38	...	'53	...	14	
December ...	3'21	...	'66	...	19	3'57	...	'71	...	16	
Total	23'74		—	191		26'06	—		162		
IN THE WEST.						IN THE NORTH.					
<i>RICKMANSWORTH U.D.</i>						<i>HITCHIN R.D. (PRESTON).</i>					
	Ins.	Ins.	Ins.	Ins.	Ins.	Total depth.	Greatest fall in		No. of days on		
	1902.	1903.	1904.	1905.	1906.	ins.	24 hours.		which rain fell.		
Jan. ...	0'83	...	2'52	...	2'43	...	1'10	...	4'50	...	0'87
Feb. ...	1'29	...	1'59	...	3'28	...	0'65	...	2'44	...	1'43
March ...	1'44	...	2'52	...	1'26	...	2'80	...	1'50	...	1'01
April ...	0'76	...	3'10	...	1'35	...	1'60	...	0'48	...	2'89
May ...	2'23	...	1'91	...	2'71	...	0'63	...	1'50	...	2'08
June ...	2'69	...	5'73	...	0'98	...	3'95	...	2'31	...	1'78
July ...	1'51	...	3'81	...	1'68	...	1'12	...	0'77	...	2'31
Aug. ...	4'88	...	2'95	...	2'01	...	2'42	...	1'26	...	1'90
Sept. ...	0'49	...	1'62	...	1'60	...	1'12	...	1'44	...	0'54
Oct. ...	1'76	...	6'82	...	1'45	...	1'09	...	5'11	...	4'70
Nov. ...	1'94	...	1'60	...	1'52	...	2'54	...	3'68	...	2'53
Dec. ...	1'15	...	2'06	...	2'08	...	0'96	...	2'29	...	3'62
Total	20'97	36'23	22'35	19'98	27'78	25'66	24'85	—		182	

The past year in Hertfordshire had from 162 to 191 wet days, as compared with an average of 174 during the past 25 years at Buntingford; and a rainfall of 24 to 26 inches to compare with an average of 24. Taking the Bayfordbury figures, it may be said that there were 7 per cent. more rainy days but 7 per cent. less rain than in 1906. But the middle months were very wet, as compared with 1906, when they were very dry except in September. Therefore, the year was damp after the first three months. The amount of epidemic diarrhœa was therefore exceptionally low, and the consequent infantile mortality the lowest yet recorded for the County, both for Urban and Rural Districts.

If one could rely on the unofficial observations recorded in the various reports of the Medical Officers of Health, it would appear that *St. Albans*, *Welwyn*, and *Rickmansworth*, toward the west of the County, with rainfalls of 26.68, 26.06, and 25.66 inches, had wetter years than *Hertford* with 23.74 inches, *Cheshunt* with 20.38 inches, and *Baldock* and *Hitchin* in the north with from 24.73 to 25.25 inches. The heaviest falls recorded are 1.23 inches on October 14th (*Baldock*) and 1.09 on May 13th (*Hitchin R.D.*).

In a record of observations in the Buntingford District for 25 years, the average fall for the year was 24.16 inches, the average number of wet days 174; the maximum fall in 24 hours 2.60 inches on July 12th, 1889; and the heaviest fall of snow on February 15th, 1900, when 0.98 inch was registered. The annual fall varied from 18 to 36 inches, and the number of wet days from 134 to 212. The greatest monthly fall, 5.93 inches, occurred in October, 1903; the smallest, 0.01 inch, in February, 1891.

There were 30 occasions on which 1 inch and upwards fell in 24 hours; on two of these it reached 1½ inches, and on two it reached 2 inches. These 30 falls occurred—1 in April; 3 in May; 3 in June; 7 in July; 4 in August; 4 in September; 4 in October; 2 in November; and 2 in December. An absolute drought is a period of 14 days or more without rain. There were 25 such periods during the 25 years, the longest being a period of 30 days from March 17th to April 15th, 1893. There was, however, a period of 34 days from February 1st to March 6th, 1891, during which only 0.01 inch was registered. Snow was registered to the amount of 17.11 inches on 194 days, representing about 3 per cent. of the 25 years' fall of 604.12 inches.

DEFENCE OF COUNTY SUPPLIES.

The Metropolitan Water Board obtained a Various Powers Act last Session, in which the Herts County Council secured the insertion of a clause, known as the Lords' Chairman's clause, as follows:—

“ The Board shall not sink any well upon, or construct any
“ works for taking or intercepting water from, any lands acquired
“ by them after the passing of this Act, unless the works and the
“ lands upon which the same are to be constructed are specified
“ in this or in some other Act of Parliament.”

This clause recognises the principle which the Hertfordshire County Council have fought for for years, viz., that restrictions should be placed upon water companies sinking wells and abstracting water from that County. In the absence of some such clause as this the water companies could sink wells on lands acquired by agreement without the sanction of Parliament. In the face of this clause, however, they will not be able to sink wells without Parliamentary sanction on lands acquired by them after the passing of the Bill, and therefore before any such wells are constructed the Hertfordshire County Council will have an opportunity of opposing the sinking of wells before a Parliamentary Committee.

A somewhat similar clause was also inserted in “The Colne Valley Water Act, 1907,” and “The Essex and Herts Water Order of 1907.” Other important amendments were obtained in these Bills, but it is not necessary to refer to them in this report.

GENERAL CONSIDERATIONS.

The question of the water-supply, not only as regards quality, but also quantity, is one of the most urgent public health problems with which the County Council have to deal. During the past year there was again a fairly good rainfall, with 7 per cent. less rain but 7 per cent. more rainy days than in 1906. Except from Barnet Urban and Ashwell Rural Districts no complaints of serious shortage of water are reported from any district, but until 1903 this had not been the case for many years. The service, however, is often only intermittent; and several of the Urban Medical Officers of Health again write of the sanitary danger and inconvenience due to want of a constant supply.

The following information is obtained mainly from the various annual and special reports of recent years. In these reports reference is frequently made to the progressive fall in water-level throughout the County, often attributed to deep borings made for the London supply. It is important that all the evidence bearing on this point should be collected, and that at the same time accurate observations should be made on the available water-supply in each district. It is to be hoped that the work of recording water-levels throughout the County from the County Surveyor's office will be carried through. Such

a knowledge is essential for a general view on which to base a policy for any one District.

SUPPLY BY METROPOLITAN BOARD.

The Metropolitan Water Board supplies the following areas in the County, according to the Annual Report, issued last July, and kindly sent me by the Chief Engineer of the Board.

District.	Parish supplied.	Acreage supplied.	Houses supplied.	Population supplied.
East Barnet Valley Urban District	East Barnet ...	6	5	28
Hertford Borough	Part of Hertford Borough, formerly part of Little Amwell	30	7	35
Hertford Rural District ...	Little Amwell ...	494	179	825
	St. John (without Hertford) Rural	1662	19	252
Hoddesdon Urban District ...	Hoddesdon Urban	1576	1029	4711
Ware Rural District	Great Amwell ...	2264	298	1894
	Broxbourne ...	1932	163	748
	Stanstead St. Margaret	408	45	192
	Wormley ...	946	206	1018
	Ware Rural ...	4208	191	883
	Hoddesdon Rural	1110	16	70
	Total ...	14636	2158	10656

Hoddesdon.—Hoddesdon Urban District is partly supplied by the Hoddesdon Waterworks Company. Section 14 (2) of “The Metropolis Water Act, 1902,” provides that in the event of the Hoddesdon Urban District Council becoming entitled to construct waterworks within their district, the provisions of the Act relating to the supply of water in bulk to the Councils of Rural Districts shall apply as if that Urban District were a Rural District of Hertfordshire. The provisions referred to are contained in Section 13 to the effect that if the Water Board are required to supply water in bulk to the Council of any Rural District situate wholly or partly within the Board’s limits of supply, the District shall cease to be within the limits of supply, and the Waterworks and plant belonging to the Water Board situate in the district in actual use (for the supply of that district *only*) within the preceding six months shall be

transferred to the Rural District Council upon terms arrived at by agreement of arbitration.

East Barnet and Finchley.—Section 35 (2) of “The Metropolis Water Act, 1902,” provides that the provisions of the Act shall not empower the Water Board to supply water (unless with the consent of the Barnet District Gas and Water Company) within any part of the statutory limits of that Company for the supply of water in which a Metropolitan Water Company were not authorized to supply water *except to such premises as at the appointed day were actually supplied by the New River Company.* The New River Company supplied a few houses situated in East Barnet (in Herts) and in Finchley (in Middlesex), which parishes were outside the New River limits. The subsection prevents Section 3 of the Act having the effect of extending the powers of the Water Board to the whole of the parishes of East Barnet and Finchley (unless with the consent of the Barnet Company), and restricts the powers of supply of the Board to the houses actually supplied by the New River Company on the appointed day as shown in the table.

DISTRICT SUPPLIES.

URBAN DISTRICTS.—1. *Baldock.*—The need of a public supply in Baldock was one of the problems inherited by your County Medical Officer from his predecessor in 1902; and it is a great satisfaction to find it has now been met by a good and ample supply since the beginning of 1908 from works owned by the Garden City Company. The Local Government Board, after an inquiry at Baldock on January 31st, 1907, gave their sanction to a loan of £3,500 for the purpose.

The Company for five years undertake to give 30,000 gallons a day at 6*d.* per 1,000, and are paid for a minimum of 10,000 each day. The Company's reservoir holds 250,000 gallons; their well, with borehole 14½ ins. by 205 ft., lined 166 ft. with steel tubing, gives 120,000 gallons a day, and could probably give 180,000. The present consumption is 30,000 to 40,000 gallons a day for a rapidly growing population of 3,000. For this purpose the Company has a single 32 h.p. engine, pumping thirty-one hours a week.

The distance of the reservoir to the first house is a mile, and a 6 inch main is taken for 1,300 yards, with a 4 inch main down either side of the broad High Street and down each side street, with 3 inch mains in a few smaller streets. The bottom level of the reservoir being 452 feet above ordnance datum and the highest street level 240 feet, water is delivered at a pressure of 91 lbs. to the square inch. Chemical analysis shows a rather hard but otherwise a very pure water, with a mere trace of albuminoid ammonia (·015 part per million), only one-third that amount of free ammonia, and 20 degrees (4·5 permanent) hardness.

2. *Barnet.*—Barnet Water Company. Intermittent service. No softening process. The Company has sunk five deep wells in the chalk, three at Barnet, one at Potters Bar, and one at East Barnet; in addition the Company obtains a certain quantity of water from the Metropolitan Water Board. Complaints are made of insufficiency, and cottagers are

deprived of their supply in a frost through the cisterns being usually placed outside and unprotected. The Medical Officer of Health continues every year to draw attention to these defects, but apparently no attention is paid to his report; it would be well, therefore, to enquire into the matter.

3. *Berkhampstead*.—Berkhampstead Water Company. There are a few private wells still in use, but the district is on the whole well supplied.

4. *Bishop's Stortford*.—Waterworks owned by District Council. A few private shallow wells still in use. As in 1901, one well-water was analysed and found to be polluted.

5. *Bushey*.—Colne Valley Water Company, a softened water with only 3 degrees of hardness; the District is, on the whole, well supplied.

6. *Cheshunt*.—Waterworks owned by District Council, with a reservoir on the highest ground of the district and a well at the foot of Darnicle Hill. Under "The Metropolis Water Act, 1902," the Urban District Council of Cheshunt have a valuable right to a supply of water by the Metropolitan Water Board, and this right has been taken advantage of by that Council. It must be noted, however, that when the large well of the East London Waterworks Company was sunk, it emptied two pipe wells in Waltham New Town. Care must be taken, therefore, against further depletion of the County's supply by future operations of the Metropolitan Water Board. The question also of the Cheshunt supply being taken over by this Board has been discussed, and the attention of the Council is drawn to the danger of such intrusion by an outside body. Some private wells still in use. The non-extension of the mains to Beaumont Green has been the subject of correspondence for several years; and after enquiry by the County Medical Officer, the District and Parish Councils Committee on March 17th, 1905, decided to take no further action.

7. *East Barnet Valley*.—Barnet Water Company. Mostly intermittent supply from deep wells in district of good quality and sufficient quantity for constant supply. Brunswick Park, parts of Barnet Vale and Hadley, and nearly the whole of East Barnet have a constant supply; and it is proposed to give a constant supply to all parts less than 270 feet above sea-level. It is to be hoped this will be a sufficient success to warrant extension of the constant supply throughout the district. No private wells.

8. *Harpenden*.—Harpenden Water Company, from deep chalk wells, 250 to 460 feet in depth, near Midland Railway Station, with water-level 145 feet below ground. These give a constant supply, good, pure, and sufficient; but the existence of twenty leaking cesspools within 200 yards of the waterworks and the direct disposal of Harpenden sewage in the

chalk on the line of flow of underground water to the wells threatened their safety, and a sewage scheme is now to be provided. A sample of the water has been examined by Professor Kenwood and pronounced satisfactory. Private wells for about fifty houses in the outlying parts of the district.

9. *Hemel Hempstead Borough*.—Corporation Waterworks. An increased supply is needed, and the Committee have sunk a second borehole near the present well at a depth of 330 feet from which a large quantity of water is obtained. Little was obtained at 160 feet, the depth of the old borehole, which must therefore be draining surface-water. Some private wells still in use.

10. *Hertford Borough*.—Corporation Waterworks, from four deep wells in the chalk, one sunk in 1904 as a substitute for the shallow well which was liable to pollution; the new well gives a good yield of excellent water. A water-mill, a gas- and a steam-engine, are used to raise the water. Constant service except in higher parts of the town. For this and to increase the storage capacity there is a scheme for a higher tower at Bengo, still, however, in abeyance. Many houses have only an intermittent supply. Numerous private shallow wells, although of doubtful purity, are still in use, and several, found polluted, have been closed.

11. *Hitchin*.—Waterworks owned by District Council. Daily consumption averages 140,000 gallons. The supply required to be increased, and the Local Government Board held an inquiry in December, 1906, on an application for the necessary loan for another reservoir and an increased supply to the pumping-station. As result they refused to sanction the loan on account of the unsatisfactory origin of the water. During the year a well has been dug at Mill Head, Charlton, 25 feet in depth and bricked, and a bore sunk for another 40 feet. This has given a very satisfactory supply.

12. *Hoddesdon*.—A private Hoddesdon Water Company, from a deep well in the chalk. The water is pumped up into a reservoir and distributed by gravitation. A few private wells are still in use. Negotiations for the acquisition of the waterworks by the District Council fell through, but the Medical Officer again expresses a hope that some agreement may be reached. It is considered important that these waterworks should be acquired by the Urban District Council.

13. *Rickmansworth*.—Rickmansworth and Uxbridge Valley Water Company, from well at Batchworth. The water is hard (16 points total, 3.5 permanent), but otherwise of good quality. The Medical Officer of Health again urges the drawbacks of a hard water and the need for softening, both for economical and hygienic reasons. It would be well to write and draw the attention of the District Council to these yearly

recommendations of their Medical Officer of Health, and ask what action they propose to take. Deep and shallow private wells, some only 6 to 12 feet deep, are also in use, but the latter only seldom.

14. *Royston*.—Royston Water Company, from the chalk; and two private deep wells.

15. *St. Albans City*.—St. Albans Water Company, from the chalk, a pure and plentiful supply. The City Medical Officer of Health again recommends the adoption of a softening process.

16. *Sawbridgeworth*.—Herts and Essex Water Company, from chalk wells in south of district. The water is pure, and the supply is now both constant and sufficient, and is extended to most houses in the district.

17. *Stevenage*.—Supply, good and continuous during the past year, by District Council from a deep well above the Church. Outlying parts of the District are supplied by private wells. The lack of a permanent supply at a fully licensed outlying public-house has been met by the sinking of a new well. Storage insufficient for even one day's supply; and provision of new reservoir to hold 300,000 gallons is under consideration.

18. *Tring*.—Chiltern Hills Water Company. Many private wells still in use, but mains have been extended to New Mill. The Medical Officer of Health's report seems to imply reluctance on the part of property-owners to connect with the mains, and he takes occasion to remark on the danger of private well-pollution in towns, and the untrustworthiness of a good chemical analysis as any guarantee of purity.

19. *Ware*.—Waterworks owned by District Council, supplied from two deep wells in the chalk. Analysis shows both satisfactory, except for hardness, mostly temporary and removable by boiling. It has now been decided to take the bulk of the supply from the lower well. The constant supply has occasionally failed in the higher parts of the district; some changes in the machinery at the wells are contemplated, and the Engineer is to report.

20. *Watford*.—Waterworks owned by District Council, supplied from deep wells in the chalk. The water is hard (nearly 19 degrees), and the Medical Officer of Health has repeatedly urged the dangers and drawbacks of hardness. This complaint is now likely to be met. Watford Fields House has been purchased, and a scheme adopted for enlarging the waterworks and softening the water.

A well 150 feet deep will be sunk to yield $1\frac{1}{2}$ million gallons in eleven hours. By Haines' process the hardness will be reduced to degrees, and after passing through a series of filters it will be raised

by new pumping plant to a reservoir, holding 2 million gallons, to a site, purchased by Council, at Merryhill, Bushey.

RURAL DISTRICTS.—1. *Ashwell*.—The villages of Barkway (which has a public supply), Reed, and Nuthampstead from shallow wells, and partly from ponds; Ashwell from wells and springs; Barley, Therfield, and Hinxworth from ponds and deep wells; Kelshall chiefly from ponds. At Nuthampstead the supply, as usual, ran short in the summer, and water was supplied free by water-cart. No further steps have been taken towards a water-supply for Kelshall and Reed, the question of which has been much discussed since 1901. It would appear that the supply at Hinxworth is unsatisfactory.

A scheme for the sewerage and water-supply of Ashwell village has been much discussed since 1904. The County Medical Officer of Health reported on the subject to the District and Parish Councils Committee after visiting Ashwell in November, 1904. He found that the water-supply was derived from private wells, especially one near the Post Office, some of which were said to be polluted, but mainly from springs into which many of the inhabitants dipped at the upper end of the village. Fordham's Brewery at the lower end taps the water before it issues from the chalk, and this supply is conducted in an iron main, from which the public are allowed to draw at the brewery. The District Council applied to the Local Government Board to be constituted a Special Drainage District for these purposes in March, 1904; the Local Government Board gave their approval on May 12th, 1904; on June 2nd sanctioned a loan of £250 for sinking a well, being part of the £2,338 required for a water-supply, and on June 6th gave their sanction to a loan for £3,180 for sewerage. On July 13th, however, the Ashwell Parochial Committee recommended to the District Council that the whole question of water-supply and drainage be referred to the Parish Council and to a Parish Meeting, and the Parish Meeting resolved to ask the District Council that the question be reconsidered. The District Council referred the matter to the Parochial Committee, who reported on December 14th that they wished for time to be given them in which to submit a less costly scheme. A petition praying for a less expensive and less efficient scheme was received by the District Council on January 11th, 1905, and was also referred to the Parochial Committee.

This Committee, on March 21, 1907, decided to adopt a scheme for drawing water from the Biggleswade Water Board's reservoir at Toppler's Hill. Messrs. Elliott & Brown, engineers, have prepared plans, and were instructed on July 9th, 1907, to complete the scheme. Some

adjustment remains to be made with regard to Edworth in the Biggleswade Rural District; and Hinxworth is considering the question of drawing a supply from the Ashwell main.

A well at Barkway still awaits a favourable opportunity for being cleaned out and inspected.

2. *Barnet*.—Barnet Gas and Water and Colne Valley Water Companies for Elstree, Boreham Wood, Shenley, Ridge, and Totteridge. In Arkley most of the houses are supplied by the Barnet Company.

3. *Berkhampstead*.—Berkhampstead Water Company for a large portion of Northchurch and Berkhampstead; Chiltern Hills Company for Wigginton and Aldbury. Wilstone, Astrope, Puttenham, and Long Marstone were supplied last year through the generosity of certain landowners by an extension of the Chiltern Company's mains from Tring through New Mill. The population thus supplied is under 800, and the cost was originally estimated at £2,000.

4. *Buntingford*.—The several parishes are supplied as follows:—Anstey by public wells and ponds; Cottered and Little Hormead by public wells; Aspenden, Broadfield, Buckland, Great Hormead, Rushden, Throcking, Westmill, and Wyddial, by wells; Ardeley, Meesden, and Sandon by wells and ponds; Wallington by springs from dip-holes by the roadside; and Layston, hitherto including Buntingford itself, by shallow wells, all liable to pollution.

The need of a public supply for the little town of Buntingford has been emphasized in every Annual Report of the District and County Medical Officers of Health since 1898; and on September 13th, 1904, an inquiry was held into the matter by the County Surveyor and County Medical Officer of Health, who reported to the County Council on December 12th, 1904. The main difficulty arose in the existence of an 8s. rate on an assessable value for the Special Drainage District of only £2,975. The loan of £350 was to be repaid within five years.

The work, however, is now completed; a well 133 feet deep has been sunk in the chalk on rising ground half a mile west of the town; a reservoir has been built, a pumping-station erected, and the supply has now been in use for some months. Only a few houses have as yet applied for the supply. The water is of good quality, with 18 degrees of hardness.

5. *Hadham*.—A good public supply now completed and laid on to 125 houses. It will be remembered that this recommendation resulted from an inquiry held by the County Surveyor and County Medical Officer of Health on June 3rd, 1902. The supply had hitherto been, and still to some extent is, by shallow wells in a generally polluted soil. At East End, in the parish of Furneaux Pelham, a well 140 feet deep in the chalk gives a pure and plentiful supply.

6. *Hatfield*.—A deep well belonging to the Marquis of Salisbury supplies the town. Little Heath is supplied by the Barnet Water Company; Essendon by wells adjacent to the River Lee, the water being pumped up to a water-tower in the village; the rest of the district by wells.

7. *Hemel Hempstead*.—Rickmansworth Water Company for Kings Langley, Chipperfield, and Bovington, the mains being connected up where practicable. Flamstead is supplied from a deep well by an oil-engine, distributing water by gravitation to tanks in various parts of the village. The rest of the district depends upon wells. Attention is again called to the inadequate supply of *Markyate Street*, as in several previous years. An inquiry into this matter in 1906 by the County Surveyor and Medical Officer showed the grave dangers arising from the existing conditions, and the Thames Conservancy Board had long been urging measures to prevent contamination of the River Ver. A scheme is now under consideration by the Council, and there is some hope that a supply will be obtained.

8. *Hertford*.—Since the report of the District Medical Officer of Health, in answer to request of Local Government Board for information on the subject, no further action has been taken, except that at Datchworth a deep well at a distance from some of the houses was in 1905 procured for public use instead of the pond on the green. In the chief parishes, Aston, Bennington, Datchworth, Walkern, and Watton, the supply is mainly from shallow wells, except in the case of Bennington, where it is from deep wells, and in the case of Datchworth, where it is from rain-water tanks and ponds and from the newly-acquired well. There is a sufficient number of wells readily accessible, except during periods of drought, but owing to the labour involved in obtaining water from draw wells, less is used than were the supply from a tap. The shallow wells are sunk in porous soil in close proximity to the houses. Upon this soil has been deposited for generations all refuse, both household and human. The wells are dry-steined, and no attempt has been made as a rule towards their protection.

A public supply is required, but the rainfall of the last two years has obscured the suffering entailed by drought, and the matter appears to have passed into abeyance.

In 1905 the District Medical Officer of Health and Surveyor visited Chelmsford and Maldon in Essex, where satisfactory public supplies have been arranged for large rural districts, and prepared a scheme for the Hertford District on similar lines, entailing an expenditure of £18,000 and a rate of 4*d.* in the £1. As no further action has been

taken in the matter, it would be well to enquire if any action is proposed, and, if not, to report default.

9. *Hitchin*.—During the eight years drought, viz. 1895 to 1902 inclusive, most parts of the District showed signs of their water-supply becoming very low, and few of the smaller villages had no cause for complaint.

The whole of the District, with the exception of a few parts close to the Urban District of Hitchin, is supplied by deep and shallow wells (private and public). A few hamlets, such as Tea Green and Breachwood Green in Kings Walden parish, are supplied mostly by rain-water collected into tanks beneath the ground-level. At Bygrave a new well has been bored. At Cockernhoe, a hamlet of Offley near Luton, several of the wells have been found to contain impure drinking water, and it is hoped this year to arrange a scheme for a supply from the Luton Water Works Company.

The *Garden City Company* have a good and ample supply from a well near Pixmore with a pumping-station, a large covered reservoir, and mains to Willian, Letchworth, Norton, and Radwell. During the past year they have extended their mains to all but a few houses on the edge of their large estate, as well as to the Urban District of Baldock (see p. 69).

At *Clothall*, a village situated on a high level, a 200 feet well was sunk and windmill erected to pump water up to cisterns at Quickwood and Clothall Bury. The power of the mill, however, was insufficient, and it was blown down. An oil-engine is being erected in its place.

Weston is the locality with the worst supply. A deep well, 230 feet into the chalk, supplies the Manor House; water is raised by a steam-engine to a cistern, and there is a standpipe for tenants. But the greater part of the population still use water from shallow wells, less than 20 feet deep in gravelly clay, from ponds and dipping-holes or imperfect rain-water storage tanks. The yearly sickness among children in this village is exceptional and appears to be due to this impure supply. This inadequacy has been noted in vain for several years by the Medical Officer, who again lays special stress this year on the need of a proper supply in this village, suggesting for Weston, as was proposed in 1903, an arrangement with the Garden City Company, whose reservoir is situated in the parish. The matter requires immediate consideration.

Breachwood Green, which is on high ground, is insufficiently provided with pure water; a small pumping-station fixed to the deep well already in existence would make a sufficient supply for the whole Green.

Whitwell, *Kimpton*, and *Codicote*, the three chief centres of population, are all supplied by shallow wells, 15 to 20 feet deep in the gravel, and these are readily liable to pollution from the soil, which is in proximity to the houses, and must be grossly polluted. This supply cannot be considered safe. During the past year many wells have been cleaned out, copings repaired, and other sources of danger removed. It is hoped that *Codicote* will soon apply for water from Welwyn.

In *Ickleford* the supply is mainly from shallow wells, and sufficient care is not always taken to prevent soil-pollution; it is partly from river-water, taken at a point which shows undoubted sewage-pollution. A new well, sunk 35 feet into the chalk at the Rectory, gave a water which by three analyses proved unfit for drinking purposes.

Walsworth is gradually being supplied from the Hitchin Urban Waterworks.

Hexton has many cottages now supplied from the village spring, and each new cottage built will have its separate supply from the park. Cisterns, supplied from the main and with pipes fixed, now take the place of dipping-holes.

Offley is on high ground, and the wells few and deep; the two mostly used by the village are privately owned.

At *Radwell* in boring for water at the Mill-house, 300 feet of clay was found over rock. This is estimated at 1 foot thick, and it is hoped to find water beneath it.

The County Surveyor and County Medical Officer of Health held an inquiry on December 1st, 1904, into the sewage-disposal of *Codicote*, *Ickleford*, and *Weston*, and in their report to the County Council on March 17th, 1905, the above facts about water-supply were substantiated, and the question of a public supply was shown to be merely one of expense.

The vital statistics of this district, especially as regards infant-mortality and epidemic death-rate, are exceptionally serious. In parts of the district work has been done for the protection of the wells and the supply of fixed buckets during the past year; but many parts urgently require attention.

10. *St. Albans*.—Harpenden Water Company for part, and wells for the rest of parish of Harpenden Rural. *St. Albans* Water Company and wells for *St. Stephen* and *Sandridge*, and the same Company for *Fleetville* and *London Colney*, in parish of *St. Peter* Rural, the rest of which—*Colney Heath* and *Hill End Asylum*—is supplied by wells, as are *Wheathampstead*, *St. Michael* Rural, and *Redbourn*. In *Redbourn* the Parish Council have sunk several tube-wells, from which water is raised by pumps. Water from the Company's mains have been laid

on to most of the houses in London Colney with defective wells, and others have obtained good water from their neighbours. No mention is made of the water-supply in this year's report from the District.

11. *Ware*.—Before the great rainfall of 1903 there were frequent complaints of scarcity, which have not, however, been repeated. In Great Amwell the Metropolitan Water Board in 1906 extended their main at Hertford Heath and during the past year for some more houses, a great improvement over the former supply from shallow wells in the clay, the water of which has again in every case shown pollution. The mains of the Ware Urban District Waterworks supply London Road and Mount Street. The Council's new well at Broxbourne for Broxbourne and Wormley has proved satisfactory. All cottages but one at Wormley West End have been connected with the mains. Eastwick is supplied by tap from a spring; Gilston, Hunsdon, Great Munden (with a deep well at Nasty), Standon (shallow for Colliers End, Puckeridge, Standon, and Wadesmill, deep for High Cross), Thundridge, Ware Rural, and Widford by wells; Little Munden by public deep wells (with a deep well at Haultwick, where a new patent water elevator proves a success), and Stanstead Abbots by tube-wells in the chalk. There is no information concerning the parish of St. Margarets.

12. *Watford*.—The District is on the whole well supplied by the Colne Valley Company, the Rickmansworth Company, and the Hemel Hempstead Borough Waterworks.

13. *Welwyn*.—Council's waterworks, Woolmer Green, which is also supplied from Knebworth. The rest of the District is fairly well supplied by wells.

DRAINAGE AND SEWAGE-DISPOSAL.

In 1903 the County Council requested all District Medical Officers of Health in the future to report fully as to the means adopted by their respective authorities for the treatment of sewage, and as to the efficiency of the same. Some of the reports for 1907 deal fully with the subject, but in several instances it would be of advantage to have more information. Attention is drawn to the memorandum of the Local Government Board to Medical Officers obliging them to give such an account every year, and not to confine themselves to changes effected and desired.

All the Urban Districts, with the single exception of *Harpenden*, are provided with sewerage systems; and the exception is now being removed. In *Rickmansworth* the new system was inaugurated on March 7th, 1904, and practically the whole District is now connected up. At *Sawbridgeworth* a comprehensive scheme has long been prepared, but has been delayed. The need for compulsory powers for the land required involved a second inquiry by the Local Government Board in February, 1908.

In the Rural Districts very few villages appear to have any satisfactory sewerage system, and the existing arrangements for the disposal of excreta are far from sanitary. Earth-closets, when properly constructed and attended to, are amongst the best and most suitable contrivances for use in Rural Districts, and should be productive of no nuisance. Unfortunately, the privy pit and cesspool are still in very general use, and the disposal of earth-closet refuse, through ignorance or carelessness, is often seriously mismanaged.

LEE VALLEY DRAINAGE.

The general question of sewage-disposal in the whole eastern area of the County was raised in 1905 by the proposal of the Metropolitan Water Board to purify the Lee and the Stort. It was represented to them that London was drinking 30,000,000 gallons of water a day from these rivers, and that this was polluted by 2,000,000 gallons a day of almost crude sewage. They proposed, therefore, to remove their intake from Ponders End, below Waltham Cross and Cheshunt, 8 miles up the river to Feildes Weir, and to construct a main intercepting sewer from Bishop's Stortford to take the sewage of all places along the valley on the east side of the County down to Nazeing, in Essex, 4 miles from Broxbourne and Hoddesdon. The cost of the sewer, £125,000, was to be borne by the Board, but the cost of connecting up existing sewerage-systems to the sewer was to be borne by the Local Authorities.

When the Bill was introduced, it was found that the Board recognised the principle of the expenditure, necessitated by the use of Lee Valley water for drinking purposes, falling upon the Water Board and not on the Local Authorities. But on March 23rd, 1906, the Clerk of the Board wrote to the Clerk of the Hertfordshire County Council informing him that parts of the Bill relating to sewage-disposal were to be withdrawn, "so that the matter may receive further consideration " in the light of recent developments."

On May 4th representatives of the County Council and of the District Councils concerned met in conference and resolved:—

"That the President of the Local Government Board be asked to receive a "deputation from the Hertfordshire County Council to explain to him that the "various Local Authorities are *quite prepared to carry out such works* of sewage-disposal as the Board may consider to be necessary, and that if necessary they "are *quite prepared to bear their fair share of the cost* of any such works, *provided "the Metropolitan Water Board bear any portion of the expense involved in bringing "an otherwise good effluent up to the standard which should render the water of the River "Lee a source of water-supply for London beyond suspicion "*"

It is understood that the Water Board were asked by the President of the Local Government Board whether they were prepared to contribute towards the cost of sewage-disposal works in the valley of the Lee, and particularly in the case of Sawbridgeworth. Their reply is not published; but the attitude of the Lee Conservancy may be judged from the following letter, addressed to the County Medical Officer:—

LEE CONSERVANCY,
12, FINSBURY CIRCUS, LONDON, E.C.,
1st February, 1907.

DEAR SIR,

Sewage Effluents.

For some time past considerable difficulty has arisen in connection with prosecutions undertaken by the Lee Conservancy in regard to the degree of purity which should be required in the sewage effluents which discharge into the River Lee or its tributaries.

As you are aware, a very large volume of water is abstracted from the river by the Metropolitan Water Board for drinking purposes, and the Conservancy are constantly being urged by that Board to bring pressure upon the various Local Authorities, whose works and farms are situated above the water intakes, to bring their sewage effluents up to a very high quality. The Conservancy are, however, placed in this difficult position, that although in many cases the effluents discharged above the water intakes might be extremely detrimental to water which would be used for drinking purposes, yet the same effluents, if discharged *below* the intakes, might be free from serious objection. It is obvious that this places the local authorities whose farms and works are situated above the intakes in a most unfavourable position compared with those below, and that the former have a perfectly reasonable ground for complaint when called upon to incur expenditure upon their works which is solely necessitated by the requirements of the Metropolitan Water Board.

The Conservancy, although still adhering to the opinion which they have so frequently expressed that by far the best solution of the difficulty would be to construct main intercepting sewers to take the whole of the effluents from the Valleys of the Lee and Stort (although for the moment the proposal is in abeyance), consider that, as they have no sufficient indication as to what is and what is not an effluent which would be satisfactory to the Water Board, it would be of great assistance to them if the Local Government Board were to fix a standard of effluent to be applicable to the whole

watershed, upon which they, the Conservancy, should insist, and they are contemplating approaching the Local Government Board with that object.

Before taking this step, however, the Conservancy feel that it would be of the utmost value to them if they could be in possession of the opinions of the Medical Officers of Health of the districts interested *as to whether or not it is practicable to fix such a standard* as that to which I have referred, *and, if so, as to what that standard should be.*

I am therefore desired by the Conservancy Board to ask you to be so good as to assist them in the manner I have indicated, and to meet several of their members at this office in, say, three weeks' time, in order that they may discuss the matter with you.

I may mention that the Metropolitan Water Board have informed the Local Government Board that, subject to the consideration of special circumstances in any particular case, the general view of the Water Board is that if local authorities efficiently maintain and carry on such works of sewage purification as are usually required by the Local Government Board when sanctioning loans under "The Public Health Act, 1875," no additional means of purity would be required by the Metropolitan Water Board from those local authorities.

Yours faithfully, J. R. HOBDAV,
Clerk of the Board.

The Medical Officer of Health,
County Council of Hertfordshire.

The suggested conference was accordingly held at the offices of the Conservancy on March 1st, 1907, eight medical officers being present, including the County Medical Officers of Essex and Herts and the Medical Officer for the East Herts and Essex combined district. The proceedings were confidential; no resolutions were put and no decisions formulated.

In this connection five questions naturally suggest themselves:—

(1) Whether the standard should be one of sewage-effluent; or one of flowing water in the middle of the stream at a given distance below the outfall;

(2) Whether the standard should be single, double, or triple, to include respectively the albuminoid ammonia (organic nitrogen), the oxygen absorbed, and the putrefaction after twenty-four hours;

(3) Whether the same standard should be applicable to all reaches of every river at all seasons;

(4) Whether such standard should be the absolute basis of legal prosecution or merely a guide to judgment;

(5) Whether the consumer might justly call on the polluting authority to purify its effluent more than to prevent actual nuisance from smell or deposit.

The standard for *organic nitrogen* (or ammonia) proposed by the Rivers Pollution Commissioners as rendering an effluent unfit for discharge into a river was anything over 0·3 part per 100,000.

Sir Henry Roscoe's standard, known as the Mersey and Irwell standard in Lancashire, as commonly accepted in the Law Courts, and by the West Riding Rivers' Board and in Essex, is

Organic ammonia, ·14 per 100,000.

Oxygen absorbed, 1·4 ,,

In Essex, Dr. Thresh also requires that putrescence shall not be observed if the crude effluent is kept for three days in a partly filled bottle at 80° F.

Another Authority has three classes of standard, bad, not bad, and good respectively, and three different requirements, each with its three classes, for the tideway, the river between tideway and intakes, and the river above the intakes respectively. These are taken as guides only to forming a judgment on the effluent, but not as bases of legal action. As these figures were given confidentially to the Conference, they cannot be published.

The Mersey and Irwell standard is one which would not tax our Hertfordshire Authorities with undue severity, as may be shown by the following figures, determined in *grains per gallon*,* during recent years.

ANALYSIS OF HERTFORDSHIRE EFFLUENTS.

	<i>Mersey and Irwell Standard.</i>	<i>Hoddesdon.</i>		<i>Hertford.</i>			<i>Sawbridge-worth.</i>	<i>Elsewhere.</i>			
		<i>Oct. 10, 1905.</i>	<i>Feb. 1906</i>		<i>Stagnant Ditch.</i>	<i>Rural.</i>					
Organic Ammonia	0·1	'06	'05	'15	'45	and several better	'35	'04	'15	'09	'03
Oxygen absorbed	1·0	1·1	'43	1·03	'23		1·07	'34	'64	'86	'18

At present, however, from the point of view of the London supply, the question has lost its acuteness. For it appears that the eminent expert attached to the Water Board as examiner found the Lee filtered water "pure and of good quality, and the East London supply, consisting "mainly of filtered Lee water, contained less organic impurity than any "of the Thames-derived supplies." In the Board's returns for November, 1907, 88·1 per cent. of the samples collected from their East London (Lee) supplies were described bacteriologically as first-class; and by chemical analysis all the Board's supplies yielded results worse than the average, except those from the New River and East London (Lee). Recent experiments show that the non-pathogenic organisms of water have a great purifying effect, a week's storage destroying 99 per cent. of the contained pathogenic bacteria. The present policy of the Water Board appears, therefore, in the main to be the building of vast reservoirs, and in April, 1908, the first sod was cut

* 1 gallon = 76,800 grains. ∴ x grains per gallon = $1·30 x$ parts per 100,000; y parts per 100,000 = $·77 y$ grains per gallon.

by Mr. E. B. Barnard, M.P., of a new reservoir close to Ponders End Station in the parish of Chingford. It will cost £340,000; will cover 416 acres with water out of the 980 acres of the site; will hold 3,000 million gallons, and so, when completed in four years' time, will more than double storage-capacity in the Lee Valley.

RIVERS POLLUTION.

As regards the parallel question of *Rivers Pollution*, not much need be said. The Middlesex County Council, according to their General Powers Bill, 1906, asked and obtained the consent of the Hertfordshire County Council last year to cleanse Dollis' Brook where it flows between adjacent districts (Barnet Urban and Friern Barnet) of the two counties.

Pollution of Dollis' Brook from the Whelm Laundry gave rise to an action in June, 1907, in which it was shown that the laundry drained into an old disused sewer before discharging into the open ditch leading to the brook; and the Barnet Urban Council, becoming thereby responsible, appointed a committee to prepare a scheme for treating the laundry-effluent. One scheme, for pumping the laundry-waste up to the Station Road sewer of the East Barnet Valley authority, was not acceptable to that authority. The other scheme for laying a sewer and pumping to the Barnet Urban Council's farm involved an expenditure of £440, or a thirty years' loan, at £23 a year.

For a pollution of the River Lee at Lemsford, dating back to a report to the Council from their Sanitary Inspector in 1893, the Hatfield Rural District Council were summoned in October last by the Lee Conservancy Board; but the case was adjourned, and the Council completed the necessary work for £90, part of which was to be paid by the owner of the cottages.

A complaint to the same Council from the Thames Conservancy Board as to an indirect pollution from a drain at Little Heath led to steps for future prevention of the nuisance.

Complaint has been received of pollution of the River Colne from the Bushey sewage-works, and remedial steps are being taken (see p. 86).

Complaint of contamination from the Middlesex County Asylum at Napsbury, near St. Albans, was found due to temporary conditions which, it is hoped, have been now obviated by extension and improvements of the private sewage farm. The operation of this farm is being watched by the Asylum and County officials.

It may be recalled that as a result of a joint deputation from the Sanitary Institute and County Councils' Association to the Right Hon. Walter Long in 1902, the Royal Commission on Sewage Disposal, in its eighth year of session, issued its Third Report, recommending the

establishment of a Board for the protection of water-supplies and water-interests. The British Science Guild took up the matter again last year, and sent a deputation to Mr. Burns, who in a sympathetic reply promised a Government Bill for this session to establish a central authority in connection with the Local Government Board, to act as a court of appeal for local rivers' boards, which are to be set up to cover the whole country. If local authorities and especially County Councils are adequately represented on such bodies, it would be of considerable advantage to them to be relieved of all responsibility as to rivers' pollution, which can only be properly undertaken by one single authority for each catchment basin, that is for each river with all its tributaries.

The Hertfordshire County Council thereafter addressed the following letter to the Secretary of the Local Government Board :—

SIR,

HERTFORD,

19th December, 1907.

Rivers Pollution.

I am directed by the Hertfordshire County Council to inform you that it has been reported to them that the President of the Local Government Board has recently received a deputation upon the subject of Rivers Pollution, and that he has informed that deputation that he proposes to introduce a Bill into Parliament dealing with Rivers Pollution in the next Session.

The County Council will be extremely obliged if the President will be pleased to receive a deputation from them upon the above proposed Bill.

The points which they desire to urge before the President are :—

That the recommendations of the Royal Commission on Sewage Disposal should be adopted in the following particulars :—

1. That instead of litigation, the proposed Pollution Board should have power to agree with Urban District Councils and traders as to what works are necessary to prevent the pollution of rivers.

2. That the various District Councils and Boards, Councils, and others taking a supply of water from rivers should have power to agree with the Councils discharging their effluent into rivers as to the portion of the cost of the sewage works which should be defrayed by them.

3. That in the event of disagreement in any of the above matters, the Local Government Board should be the arbitrator, with power to do what is fair in regard to the various interests.

As the President has frequently been informed, the inhabitants of Hertfordshire are quite willing at their own expense to do all that is necessary to make their effluent sufficiently good to be discharged into an ordinary river, but they consider that any additional expense rendered necessary by the fact that drinking water is drawn from the River Lee for the use of the inhabitants of London should be borne by the inhabitants of London.

I am, Sir,

Your obedient servant,

CHARLES ELTON LONGMORE,

Clerk of the Hertfordshire County Council.

The Secretary,

Local Government Board,

Whitehall, S.W.

PORT OF LONDON BILL.

The Board of Trade have introduced a Bill known as "The Port of London Bill," whereby the old Thames Conservancy Board, as constituted by "The Thames Conservancy Act, 1894," is to be altered and a new authority, to be known as the Port Authority, will have jurisdiction over the river up to Teddington Lock, the Thames Conservancy having jurisdiction on the upper part of the river from Teddington Lock to the rise of the river.

The Hertfordshire County Council since 1894 have had a representative on the Thames Conservancy Board, as a large portion of the County of Hertford is situate in the watershed of the River Thames, and the Thames Conservancy Board possess very stringent powers with regard to rivers' pollution. The Bill as introduced proposes to take away from the Hertfordshire County Council their representative upon the Thames Conservancy Board.

The Board of Trade have been communicated with, and a Petition has been lodged against the Bill asking for a representative from Hertfordshire on the Board.

The Board of Trade have given an undertaking to move a Clause giving Hertfordshire a representative.

LOCAL SYSTEMS.

The following particulars are mainly derived from the annual district reports of recent years, supplemented from this year's reports. The conclusions finally arrived at with regard to the Lee Valley have released the hands of the Local Authorities, who have done much work in the improvement of sewage-works during the past year.

URBAN DISTRICTS.—1. *Baldock*.—Water-carriage; hopper-closets flushed by hand. No fresh connections with main sewer. Sewage-farm of 10½ acres to north of town; subsoil chalk. The sewage is received into a tank; from there it is raised by revolving buckets to highest level of farm. No precipitant is used, and no attempt made to remove the sludge. The land is deep-trenched and vegetables grown on the ridges; the farm is let to a tenant. More systematic working of the ground seems necessary. This system has been worked during the past year in a fairly satisfactory manner, but the sludge must be separated off before the result can be considered adequate; and if any larger population is to depend on the farm in the future this improvement will have to be effected.

The main sewers were laid about thirty-six years ago; in their whole extent they lie in the chalk. There is no doubt that the joints between the pipes are largely inoperative, and considerable damage was done to drains and sewers, and often closed in without being remedied, in the laying of the water-mains last summer.

By the new water-supply more frequent flushings of the sewers will be facilitated, which will mean an increase in the volume of sewage delivered on to the farm. The Medical Officer again urges the Council to erect tanks at the end of the trench, and treat the sewage under the septic tank system. The nature of the land is certainly not such as to properly purify sewage without preliminary treatment; and a complete sewage scheme, as submitted to the District Council by the Garden City Engineer, will before long be urgently required.

2. *Barnet*.—Water-carriage. Irrigation-farm of 56 acres situated on clay soil in parish of Arkley, just south of the Urban boundary. Precipitation-tanks are used, and portion of land under-drained. Arrangements satisfactory.

3. *Berkhampstead*.—Water-carriage throughout District, with septic tank treatment. Beds working well; very good effluent obtained. Further beds have been added in consequence of increase of population.

4. *Bishop's Stortford*.—Water-carriage with main sewers, which are extended from time to time. Sewage carried by gravitation to a farm $1\frac{1}{2}$ miles distant in the Stansted Rural District, where it is pumped up and treated by broad irrigation. Much subsoil-water finds its way into sewers, and adds to difficulty and cost of maintenance. Improvements have been effected by installing a 39 h.p. gas-engine, and so pumping up whole dry-weather flow on to farm, including night effluent, which formerly passed after very inadequate treatment into the river. New filter beds for the improvement of the effluent from the south-eastern side of the farm have been constructed. No sewage now flows into the river.

5. *Bushey*.—Water-carriage since 1894. Treatment by either (I) passing through (a) duplicate screening chambers; (b) four precipitation-tanks, alumino-ferric process, 40,000 gallons each filled once daily; (c) ten prepared beds, $5\frac{1}{2}$ acres nett, underdrained at 4 feet under banks and paths only; or (II) direct irrigation on six acres unprepared land; or (III) a rotary filter, 45 ft. by 5 ft. 6 in., taking 40,000 gallons daily; or (IV) a new contact bed, 115 ft. by 55 ft. 3 in. by 3 ft. The effluent from all processes is mixed and passes under a field into the River Colne, just below the railway bridge of the Rickmansworth branch line.

Complaints have from time to time been received as to pollution of the river from these works, and the County Surveyor and Medical Officer

have had the farm under observation. The area of the farm is $16\frac{1}{2}$ acres, freehold, and the soil is a heavy clayish loam, 7 ft. 6 in. over chalk, with a shallow dressing of lighter soil in the prepared beds; but a bed once filled takes six months to empty, and even then the soil 3 feet down is still soaked. It is not only sewage-sick, but it is incapable from its nature of letting water through at a sufficient rate. A new scheme has now been prepared (by the late G. R. Strachan) for the erection of two new storage-tanks, of over 30,000 gallons capacity each; a circular detritus-tank for nearly 54,000 gallons, to supplement the old tanks, which are to be thrown into one; four new rotary filters, 80 ft. by 6 ft.; with new engine-house, two gas-engines to raise 150,000 gallons per day each with a lift, with friction, of 60 feet; and centrifugal suction gas-pumps to lift 750,000 gallons each per day 15 feet, with friction, on to filters. The dry-weather sewage-flow is 250,000; the water-supply is 162,500 per day. Sanction has been asked to a loan of £12,000, and the Local Government Board held an inquiry on May 13th, 1908.

6. *Cheshunt.* — Water - carriage. Main sewer begun in 1886. Drainage badly done in first instance. Pumping-station (sewer 14 feet below ground). Sewage-farm of 24 acres under-drained at $1\frac{1}{2}$ feet to 6 feet, and leading by sewer into ditch of East London Water Company, near Ponders End Station, never properly worked. In 1903 scheme for precipitation-tanks and lateral streaming filters was proposed, half of which have been constructed and been in use. These shallow filters, however, did not prove a success; and in 1905, on abandonment of scheme of Metropolitan Water Board of their intercepting sewer, a scheme was proposed, which is now in operation. The system adopted is the rare one of upward filtration in two large tanks, with 6 inch coarse gravel laid on planks 10 ft. 6 in. above the bottom. The sewage, pumped up into a small detritus chamber, passes into two large detritus chambers, overflows into the tanks, filters upwards and runs on to four large circular filters, 7 ft. 6 in. deep, three of which are fitted with rotary sprinklers, while the fourth, with an intermittent dosing tank and four perforated radial troughs, has not been so successful, and is to be also fitted with a sprinkler. From these nitrifying filters, the effluent is passed on to the land—five acres of the old farm and six acres of new land in plots of one acre apiece, for which sanction was recently asked for a loan of £4,900, and the Local Government Board held an inquiry on April 28th, 1908. The soil is thus used, not as a filter but for further aëration and deposit; and the effluent passes by the old sewer to Ponders End. Analysis in March, 1908, shows .072 grain organic ammonia per gallon, and .58 grain oxygen absorbed, an improvement on the January analyses, and well within the Mersey and Irwell standard. Storm-water, over six

times the dry-weather flow, passes on to part of the old land, is collected by under-drainage, and goes direct to the sewer. It is hoped that the problem is thus at last solved.

7. *East Barnet Valley*.—Water - carriage; closets nearly all connected to main sewer; few cesspools. Broad irrigation on farm of 46 acres within 1,500 yards of southern county boundary. Effluent is further treated on coke-breeze filters before being passed into Pymme's Brook. Party walls of beds are now made of solid concrete.

To meet growing needs of south end of District, new main sewer has been constructed, and a fresh field lying higher than rest of sewage-farm was opened in May, 1906, at an initial cost for sewers, engines, machinery, and buildings of £5,940. Sewage is pumped up on to new field, and from here it has to percolate right under rest of farm before reaching filters; but some lower-lying parts of farm, with only two or three feet of soil over the clay, can hardly afford as good treatment as might be wished. Position of filters and drainage of some low-lying patches also leave something to be desired.

A large scheme is under consideration to cope with all probable future needs. Analyses of the effluent continue satisfactory.

8. *Harpenden*.—Water-closets connect to cesspools, which are emptied by Merryweather exhaust apparatus. Pail-closets and privies are also in use. The former, serving cottage property, are emptied twice a week by a contractor to the Council, and the contents disposed of on farm-land.

The Merryweather apparatus has served its purpose well for eight years, despite many complaints. The two carts, with capacity 300 gallons, work nine days a week between them, and emptied 174 cesspools in the year at a cost of £265. This system is only made possible by the cesspools, contrary to byelaw 90, being "bottomed" and made to soak away. Seventy-two were thus treated last year.

Harpenden is now, however, to have a complete system of sewerage, and there is no need to recapitulate the reasons which induced the District and County Officials one after another to condemn the primitive system of sewage-disposal hitherto in existence.

A more complete picture of sanitary danger to an urban water-supply could hardly be imagined; and the inhabitants of Harpenden will have good reason to be thankful for the steps taken to insist on their proper protection.

The County Officers reported default to the County Council in 1904; the County Council forwarded their report to the Harpenden authorities in 1905, and, nothing being done to remedy the conditions at fault,

reported them to the Local Government Board as in default early in 1907.

The Local Government Board held a local inquiry in October, 1907; found that the District Council had made default in this matter, and enquired whether they were prepared to take prompt action with a view to the performance of their duty in this respect. The Council took prompt action accordingly, and decided to carry out a Drainage Scheme. A Drainage Committee has been appointed, and has paid personal visits to various sewage-works.

9. *Hemel Hempstead Borough.*—Water-carriage. Further connections made. Practically all properties are now connected to new sewer. Sewage is pumped into settling tanks on the farm, no precipitant being used. From the tanks it is run on to the land and treated by irrigation. The sludge is periodically cleared from the tanks and dug into the farm. The subsoil is chalk.

10. *Hertford Borough.*—Water-carriage. Chemical treatment. New sewers have been laid for property developing along the Ware Road; the new surface-water drain in Cowbridge has been completed, and new streets continue to be laid out and sewered. A loan of £27,000 was sanctioned by the Local Government Board in 1904 for extensive alterations to the sewage-works, which, leased formerly to the East London Waterworks Company, have now passed into the hands of the Metropolitan Water Board. At present the sewage is treated chemically, and discharged into the River Lee at Ware. No complaints have been received for some considerable time as to the condition of the river.

11. *Hitchin.* — Water-carriage. Precipitation; filtration and land-treatment. Sewage-farm of 22 acres to west of railway-line beyond Hitchin. A main sewer, laid in 1848, has undergone various alterations and extensions. Storm-water is excluded, but the sewage becomes much diluted owing to the defective jointing of the remaining portion of the original sewer, which was laid in the bed of the river. Many drainage defects are found; and filthy water-closets, without proper inspection-chambers or flushing arrangements, often cause a nuisance. Radical steps have been taken and are not yet quite completed. These will in the opinion of the Medical Officer greatly add to the power of the farm to treat the sewage efficiently. Fresh settling tanks have been built, and the sewage is now treated on the septic system. Early in 1908 works were to be commenced to bring the whole of the sewage from the south of Hitchin to the present farm. A full account of the working of the farm is promised, when the works are complete.

12. *Hoddesdon*.—Water-carriage. Broad irrigation. Farm at Rye Park, on which much work was done on the banks in 1906, to meet the difficulties of storm and subsoil water. The whole question of sewage-disposal has been most carefully considered by the Council. As a result it was decided to purchase a field of seven acres adjoining the present sewage farm. Sanction for a loan for this purpose has been given by the Local Government Board. An engineer has been appointed who has prepared the plans for the necessary work, including septic tanks and contact beds. Pumping will be required to raise the sewage a few feet.

Arrangements with Ware Rural for sewage from St. Catherine's Estate has been revised.

One new surface-water drain has been laid and another extended.

13. *Rickmansworth*.—Water-carriage. Septic tank and land treatment. Sixteen more houses, making 1,322 in all, practically the whole district, including all the elementary schools, have been connected up. Works begun in 1901, completed by end of 1903. Sewers, of stoneware above and cast-iron below level of subsoil-water, empty by gravitation into underground tank of 50,000 gallon capacity at Batchworth, sufficient to hold night-sewage. Bottom of tank 30 feet below level of River Colne close by; its floor, 4 feet thick, and its walls, 3 feet thick, are water-tight. Small pumping station in low-lying locality of Mill End pumps sewage of that part up to Batchworth tank. Duplicate pumps, driven by 22 horse-power gas-engines, each capable of raising 15,000 gallons in the hour, pump sewage from tank on to high ground near Woodcocks Hill, to be passed through septic tanks on to 14 acres of suitable land.

System continues to work admirably. Two of Webb's patent sewer ventilating lamps have been erected during 1907, one in Uxbridge Road opposite Ebury Road, and one at Scots Bridge, and are most effective. The Medical Officer of Health recommends the instalment of more of these lamps, so as effectually to ventilate the entire system.

14. *Royston*.—Water-carriage and broad irrigation. Earth-closets, and cesspools in some outlying parts. Sewage is disposed of on a farm, which has been in use many years, extended recently by 16 acres of fresh land, with a new outfall sewer. Privy-pits are no longer in use.

The surface-water over part of the town is treated separately.

15. *St. Albans City*.—Water-carriage, septic tank, bacterial and land treatment. The few remaining pail-closets are not yet said to have been abolished. Sewage-farm between St. Albans and Park Street. Septic tank, then bacteria beds (first coarse, then fine), and finally irrigation on sewage-farm.

A sludge-tank is to be erected to lighten the sewage before it enters the septic tank; and additional filter-beds are to be provided for storm-water.

16. *Sawbridgeworth*.—Much of the sewage is dealt with by water-carriage to the sewage-farm. There are also many cesspools and privy cesspits, which are emptied by the owners of the property, but the system is unsatisfactory.

Plans for drainage and bacterial treatment were prepared, and sanction for a loan of £10,500 asked of the Local Government Board, who held an inquiry in 1904 and again on February 6th, 1908, in the last case for compulsory powers to purchase land from its new owner. The scheme provides three sets of contact-beds and storm-filter on $4\frac{1}{2}$ acres of land for possible future irrigation. This land has a clay soil and is liable to floods, running down to the River Stort; but it is not likely to be wanted for irrigation and is required to facilitate purchase of the higher-lying part, on which the beds are to be erected.

17. *Stevenage*.—Water-carriage and broad irrigation.

Scheme for laying new surface-water drain and filling in old brick sewer and Weir-pond seems to have come to a standstill through failure of negotiations with copy and freeholders. The Medical Officer again draws attention to the flooding of the streets in heavy rains with the contents of the main sewer; and strongly advises a storm-water system. It would be well to ask what action is proposed.

18. *Tring*.—Water-carriage; land-treatment. Many closets are still hand-flushed, but whenever possible owners are compelled to put in flush-tanks. Sewers in lower part of town have been relaid, and storm-water partly diverted. Sewers in upper part of town leak badly and are beginning to be relaid. All storm-water will thus be diverted and treatment at outfall rendered less troublesome. Effluent has been improved by works at outfall.

19. *Ware*.—Water-carriage and broad irrigation. Sewage is carried 2 miles to Stanstead by gravitation, and thence pumped on to farm at Rye House, 3 miles from Ware on Hunsdon Road. Farm 130 acres, 100 of which can be used. During the year application was made to the Local Government Board for a loan to defray the expense of a new pumping plant. This application was refused on the ground that the condition of the works did not warrant the suggested expenditure. A more extensive scheme is to be submitted to the Local Government Board.

Method of flushing sewers direct from water-main without intervening cistern is dangerous to health; representations have been made

to District Council, and the danger reported for several years, but no action is taken.

20. *Watford*.—Water-carriage and broad irrigation. Sewage arrives at pumping station and sewage-farms at several different levels, and is discharged on to farm by compressed air through Shone & Ault's ejectors. Farms at Holywell (133 acres) and Cassio Bridge. Altogether about 156 acres of these lands are available for sewage-disposal. Soil is of very gravelly nature, and subsoil chalk; consequently land absorbs large quantity of sewage without getting waterlogged. Cassio Bridge drainage scheme, now executed, and connections at Watford Heath complete system for whole town. Certain streets also have been re-drained.

In older parts of town many sewers were laid without manholes, and many houses possess no inspection chamber, and are not cut off from sewer by intercepting trap. The Medical Officer calls particular attention to urgent want of ventilators and manholes to the sewers for adequate flushing. An old brick 22 inch sewer has been traced from Watford Fields with many ramifications, and synchronism between the temporary opening out of this sewer and a temporary abatement of diphtheria has been remarkable. The matter is to be investigated, and the Council is strongly advised to close it for all purposes but the reception of storm-water. In new part of town difficulty exists in regard to drainage of Callow Land, owing to want of fall in sewers. Chief difficulty is combined ownership of insanitary property. Application has been made for adoption of certain clauses of "The Public Health Act, 1907," which will enable the Council to deal with these matters.

RURAL DISTRICTS.—1. *Ashwell*.—Scheme adopted for Ashwell village; in some villages drains, to which house-drains connect, discharge into watercourses; in most villages pit-privies, gradually being replaced by earth-closets. Contents disposed of on garden ground.

The Village of Ashwell was in March, 1904, constituted a Special Drainage District by resolution of District Council. The construction of sewage-works was commenced on April 24th, 1907, and is now practically completed; a broad irrigation area of nearly 9 acres has been laid out outside the village for the treatment of the sewage.

Certain improvements have also been made to the drains at Barkway and Therfield.

2. *Barnet*.—*Shenley*, long-required scheme was prepared by Surveyor, and application made to Local Government Board for loan of £3,900, including £1,200 for 6 acres of land. Board held inquiry on January 17th,

1908, when Clerk for District Council at once withdrew his scheme, and only asked for compulsory powers to purchase land. It had been found that land was unsuitable for broad irrigation, having clay soil, so that effluent would run into Catherine Brook and into swallow-holes in chalk, and might thus pollute Chadwell Spring, the head of the New River supply, and local wells. Application was strongly opposed by local landowners and the public.

Elstree and Boreham Wood, water-carriage and land treatment. *Elstree* has separate farm of 27 acres. In *Boreham Wood* there is more sewage than can be dealt with on farm, of 15 acres of clay and loam subsoil, and Surveyor has prepared scheme for another 5 acres, two septic tanks, to hold one day's dry-weather flow, three primary and three secondary circular filters, large enough to deal with 190,000 gallons at 200 per square yard. This is designed for a population of 2,750, including 610 in Aldenham, Watford Rural District, in which works are actually situated. At 20 gallons per head, daily flow would be 55,000 without surface water, which is separate. Local Government Board require provision for double daily flow. Application was made to Local Government Board for sanction to loan of £4,000, and Inquiry was held on November 27th, 1906. Barnet and Watford Rural Councils are still considering the matter.

3. *Berkhampstead*.—*Northchurch* sewered under combined scheme with sewage-farm. Effluent much improved by considerable works at outfall.

A Local Government Board inquiry has been held with regard to the drainage scheme for *Long Marston* proposed by the Council. The loan, however, was refused, and a fresh scheme is being prepared.

4. *Buntingford*.—Town of *Buntingford* by water-carriage and broad irrigation on gravelly soil, planted with osiers at south-west limits of town near railway-station, without under-drainage or visible effluent. Increasing volume of sewage will necessitate better distribution over land, and Council should take over management of farm instead of letting it out to allotment-holders, whose first consideration is their crop.

A considerable portion of the main sewer has been examined and a large quantity of stones and detritus removed. Further sections upon the low-lying levels should be similarly treated. There would then be no difficulty in keeping the sewers clear with the abundant supply of water available for flushing.

In villages pail-closets and privy-pits still prevail.

5. *Hadham*.—*Much Hadham* by water-carriage and broad irrigation on farm near river to south of village. Acquisition of more land being considered. *Braughing*, storm-water and sewage will in future be

carried in separate pipes. Drainage works at High Wych have been completed, and some twenty-seven cottages in all have been connected with this sewer. *Other villages*, no system.

6. *Hatfield*.—*Hatfield Special Drainage Area*, under contract with Marquess of Salisbury, by water-carriage and broad irrigation, but sewerage and drainage of lower part of the town are unsatisfactory, and whole system has been under consideration. *Hatfield New Town*, also by water-carriage and irrigation on farm, which should be better worked, leased to tenant. In *other villages*, cesspools and pails.

Negotiations for purchase of land upon which to treat sewage of *Little Heath* are at length completed. Pollution of River Lee at *Lemsford Mills* has been remedied by improvement of filter.

7. *Hemel Hempstead*.—*King's Langley* has now a satisfactory system of sewers, but the Medical Officer again strongly urges compulsion for provision of suitable water-closets and flush-tanks. *Markyate Street*: cesspools, and a leaking sewer, originally for rain-water, discharging untreated sewage across a field into River Ver, a tributary of the Thames. The County Surveyor and County Medical Officer of Health held an inquiry here on September 24th, 1906, and found serious danger to health. They reported "that the County Council refer the matter for six months to the consideration of the District Council, and, unless definitely assured of practical steps being taken, should report default to the Local Government Board." It is to be hoped that the proposed scheme for a water-supply will include sewage-disposal. It would be well to enquire.

8. *Hertford*.—*Watton (partly)*, *Walkern*, and *Hertford Heath* by water-carriage and broad irrigation; the latter village has bacterial tanks and filters prior to land-treatment, which are satisfactorily maintained under the supervision of a special sub-committee of the District Council. Three more acres have been acquired. *Walkern* farm, mile south of village, enlarged and improved in 1904, works well. *Knebworth* estate is being rapidly developed, and a drainage-scheme will soon have to be considered.

A new sewer has been laid at *Aston*. A scum-tank has been made, and effluent is disposed of by sub-irrigation.

9. *Hitchin*.—*Willian* has been reached by a half-mile extension of the *Baldock* sewer, and new water-closets have been provided. The *Garden City* Estate has been well but temporarily sewered for parishes of *Norton*, *Radwell*, *Letchworth*, and *Willian*. Effluent treated by broad irrigation. *Kimpton* has sewerage, discharging, half-mile from the village, into pits, where sewage soaks away. At *Whitwell* the main sewer, relaid in 1902, is freely flushed at its origin, and flows out on the east into a watercourse, an overflow from watercress-beds.

Codicote, Ickleford, and Weston have long been reported as unsatisfactory. County Officers held an inquiry in December, 1904, but nothing appears to have been done, and it would be well to enquire.

The District Medical Officer of Health rightly considers that the drainage of Rural Districts should be as simple as possible, preferring a dry earth system and treatment on the garden of each house, cinders being used on paths and all refuse burnt. But cottagers cling tenaciously to their hole in the ground and rubbish heaps at their very door. Indeed, many villages, such as *Graveley, Ickleford, Norton, Offley, Pirton, Weston, and Wymondley*, provided with sewers, but no system of disposal, would be better without them. The sewage should be treated by each house, rather than be carried away and deposited without treatment close outside the village in bulk so as to pollute the water-courses. The practical policy is therefore being adopted to condemn privy-pit and cesspool, little by little, and refuse to allow them in new houses, according to the new Byelaws. The District Medical Officer of Health regards the old midden pit as mainly responsible for pollution of drinking-waters, and is glad to report yearly increase in earth-closets and sanitary middens.

10. *St. Albans.*—*Harpenden Rural* is almost entirely served by dumb-wells, emptied by owners; *Redbourn*, every dwelling of which has an earth-closet, by dumb-wells emptied by a man employed for the purpose; *St. Michael's Rural* by dumb-wells for slop-water, emptied by occupiers. In *St. Peter's Rural* no mention is made of purchase of land previously mentioned as under discussion for a sewage-outfall, and indeed Camp Ward has recently been supplied with a special vacuum cesspool van for the better emptying of the cesspools; *Fleetville* has dumb-wells, emptied by owners, a few earth-closets, and a water-closet for nearly every house; *Colney Heath*, dumb-wells, privies, and earth-closets; *London Colney*, privies, earth-closets, and a main sewer, emptying into a brick and cement tank, which is emptied from time to time; and *Hill End Asylum* has its own septic tank. *St. Stephen's* has dumb-wells, emptied by owners, with privies and earth-closets; *Sandridge*, dumb-wells emptied by owners, earth-closets emptied by contract, and a sewer which runs into a ditch. *Wheathampstead* village itself is served by two sewers, uniting into one, running to a sewage-farm, and badly laid, with a rise in its course, naturally causing obstruction; the outfall-tanks are porous and dilapidated; outlying parts have privies, earth-closets, and dumb-wells, the latter in a low-lying part of the District causing general pollution of the soil. The *Wheathampstead* sewer has now been relaid, although necessarily with too small a face.

11. *Ware.*—In most villages privies and earth-closets.

Stanstead Abbots, Wormley, and Broxbourne by water-carriage and broad irrigation, which have given satisfaction during 1907.

At *Broxbourne* a further 5 acres are being laid out.

Hertford Heath (that part in Ware Rural) has a sewer discharging on to Hertford Rural farm.

Haileybury College re-drainage is progressing in a satisfactory manner. The sewage will be carried by water and treated on 2 acres of land.

12. *Watford*.—With regard to the important problems concerning sewage-disposal in this district, it is unnecessary again to reproduce the careful and able report of the District Medical Officer of Health made last year. It will be found in the County Report for 1906.

In the parish of *Aldenham* the villages of Aldenham, Letchmore Heath, Radlett, and Elstree Lane have efficient sewers, but the New Estate at Theobald Street is in urgent need of these, and the Council are using what temporary measures are available preceding the construction of a comprehensive scheme which it is to be hoped will ere long be carried out.

In the parish of *Abbots Langley* the outfall works for the sewerage of the village and district have been put into an efficient state, and several new sewers have been laid. A line of sewer has been laid from Nash Mills to Hunton Bridge Pumping Station, which will pick up a large amount of property much in need of drainage, and connections are being fairly rapidly made. Hunton Bridge has also an efficient system of sewers. From this pumping station at Hunton Bridge the sewage is pumped on to the farm at Abbots Langley.

There is also a small pumping plant at Trowley Bottom in the village of Abbots Langley, by means of which the sewage from the lower part of the village is pumped into the sewer on the higher ground, and so gravitates to the outfall on the farm.

In *Chorleywood* cesspools are still in use and are emptied by the Council by means of a Gates plant. During the year 439 cesspools have been thus emptied; 475,320 gallons have been disposed of; the daily amount removed has averaged 1,300 gallons, or 6 gallons from each house; the cost has been £230; and whereas some cesspools have required emptying thirty-five times, others have only been emptied once throughout the whole year. As a cesspool will only hold some 1,500 gallons, and as the daily water-supply to that district is at the rate of 25 gallons per head, it follows that a watertight cesspool for a household of five can only suffice for ten days or at most a fortnight, and must require emptying some thirty times a year. In Chorleywood, however, they were emptied on an average about twice in the year. The District Medical Officer of Health is still of opinion that this parish should be sewered, and I entirely agree with him.

13. *Welwyn.*—The town of Welwyn is sewered, and there is a sewage-farm of 2 acres, $\frac{1}{3}$ acre in use, recently improved. The sewage gravitates to a pumping-station in the town and is pumped to the outfall, whence it passes through continuous 4 foot filters by three rotary sprinklers. Medical Officer recommends steps should be taken to prevent the sewage ponding after leaving the filters. The provision of a water-supply has also improved matters. New road cuts through sewage-treated ground and results must be watched.

ROAD-DUST.

In the Report for 1906 the attention of the Council was drawn for the first time to the danger to health that may be incurred by the development of the motor-car and its effect in making and raising dust. The Reports of the County Surveyor again show the large quantity of granite and slag on our roads every year thus converted into dust. The attractions and the situation of our county with regard to London account for an unusual quantity of through traffic and an increasing use of the roads by residents; and the unpleasantness of the dust, smell and noise of motor-cars, in varying degree, are no less injurious if their effect on the health does not at present admit of scientific presentment. The five senses are primarily given man for his defence against injurious surroundings; what is unpleasant to the senses must *primâ facie* be considered injurious to health.

The personal experience of motor-cars by several District Medical Officers of Health enables them to speak with some authority on the subject. In the reports for Baldock and Hitchin watering the streets is mentioned as a temporary, slag and tar construction as a more permanent, method of obviating dust. In a report on the subject from the District Medical Officer of Health and Sanitary Inspector for Baldock, it is concluded that this method of construction, if laid down in dry weather, costs slightly more than ordinary macadam, lasts three times as long, and is practically dustless. The Hitchin Council made several experiments in this matter during the last year; and at Rickmansworth the paths have been tar-painted, those done by the District Council having a double coat and lasting better than those single-painted by the County Council, and it is hoped experiments on the roads will be continued.

The matter is one of health as well as of expense and convenience; it should be regulated by the County Council, and where County Councils expend monies in making good damage to their Main Roads caused by motor traffic and in obviating the dust nuisance caused by such traffic a strong case is made out for further contributions by motor-car owners towards the cost of the repair of Main Roads.

DISPOSAL OF HOUSE-REFUSE.

The accumulation of refuse, the dry heat of summer, outbreaks of diarrhœa, an increased infant-mortality, and a plague of flies go together. It has been thought that the flies, being bred under the influence of the dry heat, carry germs of disease from the refuse on which they swarm to the food and milk of the house, and so cause fatal diarrhœa, especially in infants. In a notable study of these associated facts, issued in March, 1908, by the Public Health Committee of the London County Council, it is shown by Hamer that accumulations of horse-manure, and in less degree of house dust and other refuse, promoted fly-nuisance, noticeable at 200 yards, and justify the byelaw which prohibits accumulation of offensive refuse for over twenty-four hours. It would be well if such a byelaw, at least for the summer months, could be generally adopted in Hertfordshire.

In sparsely populated Rural Districts the work of refuse-disposal is naturally left to the occupiers, but frequent inspection of cottage property is required to prevent the common practice of depositing all kinds of refuse in a heap near the dwelling. House-refuse and slops contain a large amount of decaying animal and vegetable matter and urine, and form especially a breeding-place for flies; and where occupiers are supposed to get rid of their refuse on garden ground, it commonly happens that the limited yards of cottages become choked with ashes, and that refuse is either buried or else remains in heaps close to the back door, much also being consigned to the water-closet with untoward effect. Premises also become littered, dirty, and insanitary.

Owners of property and Sanitary Inspectors should frequently visit cottages of this class. Proper ashbins are essential, and have been gradually enforced in most parts of the East Herts and Essex Combined District. In the removal of refuse, dust-carts must be covered to prevent scattering of their contents.

In several Urban Districts there is need for more frequent removal of refuse, and for the use of covered carts in order to avoid unnecessary nuisance in the process.

The following is the account for each district. It is to be regretted that many reports contain no mention of the subject.

URBAN DISTRICTS.—1. *Baldock*.—Scavenging is regularly carried out, especially in the upper part of the town. But it is very difficult to prevent yards in Norton Street area accumulating refuse.

2. *Barnet*.—Weekly collection by District Council; refuse dealt with on sewage-farm. Byelaws as to removal.

3. *Berkhampstead*.—

4. *Bishop's Stortford*.—Collection by District Council; refuse-tips on brickfields. Suitable ashbins now in every house.

5. *Bushey*.—Weekly collection by District Council.

6. *Cheshunt*.—Fortnightly and in four summer months weekly collection by contract, once badly neglected last year. No mention of byelaws, said last year to be under consideration.

7. *East Barnet Valley*.—Weekly collection by District Council; daily for shops in centre of town. Carts should be covered.

8. *Harpenden*.—Bi-weekly emptying of pail-closets and weekly of dustbins over most of District by contract. Modern closed 4-wheel dust-van.

Houses outside village have applied for similar service; but only houses are served that have small back-yards and insufficient garden ground for the disposal of their closet-refuse. Paper and litter should be burnt by occupiers. They are now blown about from the Council's shoot.

9. *Hemel Hempstead Borough*.—No mention made in District report of two Meldrum's furnaces, in which house-refuse was destroyed during a six-months' trial, as recorded in last year's County Report, and used thereby to work the pumping plant with most satisfactory results.

10. *Hertford Borough*.—Collection by Borough Council, supervised by Borough Surveyor. The importation of London manure has caused much nuisance, but byelaws have been sanctioned by the Local Government Board dealing with this question, and this will, no doubt, considerably check the nuisance.

11. *Hitchin*.—Systematic collection by District Council in part; elsewhere refuse disposed of by householders on allotments. Much house-property of the poorer class requires frequent attention, and their back-yards inevitably accumulate refuse.

12. *Hoddesdon*.—Collection by District Council. Nuisance from tip, which has been changed; and provision of destructor in connection with new sewage-disposal works is fairly certain to come about.

13. *Rickmansworth*.—Collection by contract; collection by the District Council would be preferable. The Contractor made an attempt to deal with the question of covers being provided for the dust-carts. The nuisance was mitigated to some extent, but can only be dealt with by using properly constructed vans.

14. *Royston*.—Collection by District Council, under supervision of Surveyor, but Medical Officer suggests consideration of some other system less complained of.

15. *St. Albans City*.—Collection by Corporation, in some central parts daily, in others every week. A bi-weekly collection is urged, and daily collection in poorest and most crowded quarters. Also, as in previous years, covers for the dust-carts. The erection of a destructor is again suggested. Enquiry is advisable.

16. *Sawbridgeworth*.—Bi-weekly collection by contract satisfactory.

17. *Stevenage*.—Weekly collection by District Council. Refuse is burnt on sewage-farm.

18. *Tring*.—

19. *Ware*.—Weekly collection by District Council. The Medical Officer again recommends that suitable ashbins should be prescribed, and the removal of all house-refuse from the proximity of houses.

20. *Watford*.—Collection by District Council with five covered vans, now extended to New Bushey area. Areas rearranged in 1906, owing to rapid growth of town. Destructor, opened in 1903, has destroyed every week: 138 tons of refuse from town, 27 tons from old heap by Workhouse, 2 tons private, also 126 dogs, 56 cats. See No. 9.

RURAL DISTRICTS.—1. *Ashwell*.—By occupiers in ashpits and then on gardens. Systematic scavenging for larger villages again suggested, as last year.

2. *Barnet*.—

3. *Berkhampstead*.—By the Council, who have byelaws in force.

4. *Buntingford*.—By occupiers; state very insanitary. There are only five or six proper ashpits or bins, and refuse accumulates in heaps, the soil of gardens already consisting largely of ashes.

5. *Hadham*.—By occupiers.

6. *Hatfield*.—In Hatfield and Little Heath by contract, elsewhere by occupiers on gardens or allotments.

7. *Hemel Hempstead*.—

8. *Hertford*.—By occupiers.

9. *Hitchin*.—By occupiers, mostly into ashpits in ground. Cottagers require instruction to dispose of rubbish and not to collect it. High-bricked ashbins and insanitary garden-holes are too common; so also are wrongly-constructed and tumble-down middens.

10. *St. Albans*.—

11. *Ware*.—In most villages by occupiers. Systematic in Wormley only. *Broxbourne* and *Stanstead Abbots* were the subject of special inspection and report in this respect in 1904 by the District Medical Officer of Health at the request of the Local Government Board; present arrangements were found unsatisfactory both to the better householders and to the farmers who remove the refuse,

while the collection of refuse on the present lines from cottage-gardens was a serious danger to health ; and the adoption of a proper system of scavenging was advised. Both parishes, however, have intimated their satisfaction with present arrangements. The case demands further enquiry.

12. *Watford*.—Weekly collection in Abbots Langley, Aldenham, Radlett, and Elstree, in the hamlets of Trowley Bottom, Chorleywood, Hunton Bridge, and Primrose Vale, and by the Council's own men in Bushey Rural. In Chorleywood, also, cesspools are emptied by Council's men, on receipt of notice.

13. *Welwyn*.—

HOUSING AND TOWN-PLANNING.

As regards housing in Hertfordshire there is little to report for the past year.

The housing question has come much to the front by the introduction of a Government "Housing, Town-Planning, etc., Bill," introduced by the President of the Local Government Board on March 26th, 1908, following upon the International Housing Congress, attended on your behalf by your County Medical Officer in August, 1907.

The first part of the Bill proposes mainly to give further facilities for acquisition of lands and other purposes of the Housing Acts to District and Borough Councils under the direct sanction and supervision of the Local Government Board. The second part introduces into the British Legislature the new principle of guiding, with or without compulsory purchase, the extension of existing towns and the planning of new towns. The third part would make compulsory the appointment of County Medical Officers, to perform duties to be prescribed by the Local Government Board, and would give such officers powers to exact information from the clerks and medical officers of health to District Councils.

It is generally agreed that these provisions are of little value as regards rural housing until the machinery of public health administration has been revised. On a yearly tenure of office worth in some cases only £10, a district official cannot be expected to condemn property of his influential neighbours; even in public-spirited districts in Hertfordshire only the fringe of the problem is touched by present administrative procedure, and elsewhere nothing is done in the matter whatever. Equally is it unsatisfactory to give supervision of the work directly to the Local Government Board, which cannot possibly keep in touch with local conditions in detail, and is already overburdened with work. The proper position of the County Council, with its large responsibilities and its direct representation of local interests, is as the sole intermediary between the Board and the District Councils, with a right of appeal from the latter to the Board when necessary. The County Councils should be held responsible for the due exercise by District Councils of their powers, as the colonel of a regiment is held responsible for its efficiency and control by his general; and District Councils would then look to the larger influence and experience of the County Councils for help in the solution of the problems before them.

As regards Town-Planning, there is special reason for objecting to the omission of county control, when Letchworth, the type of town-planning, immediately affects three districts in this County, and when

John Gilpin's road from Edmonton to Ware, a striking instance of linear extension, runs through a continuous avenue of houses in half-a-dozen different districts. It is important for your Council to press for powers of control in this invasion of the County from London.

Finally, with regard to the third part of the Bill, it is unlikely that your Council will dissent from the County Councils' Association, which strongly resents the prescription of the duties of their officers by a Government department which bears no share in their appointment or salary.

Only a few of the Rural District Councils appear to have so far adopted byelaws in respect to new buildings. It is to be hoped that the remaining District Councils will carefully consider, with a view to their adoption, the Model Byelaws for Buildings in Rural Districts issued in 1904 by the Local Government Board.

One point is emphasised by several Medical Officers of Health, who give much attention to the subject, in that however many houses and cottages of good class exist, the oldest and least sanitary will always remain tenanted, unless wages be increased. It is necessary to remember that those who are too poor or ignorant to be clean will always prefer the oldest and cheapest houses; and that the only way in which re-housing of this class of the community can be effected is by the Sanitary Authority closing and demolishing the worst houses and taking action against overcrowding. This alone—indeed, this alone—can urge the people up into more sanitary houses, and enable builders and landlords to build. Whether or not this involves a rise in wages, comparable to that which has generally taken place in the towns, is an economic, not a sanitary problem. The duty remains to Sanitary Authorities vigorously to close, to demolish, and to prevent overcrowding.

The following defects have been noted or action taken:—

URBAN DISTRICTS.—1. *Baldock*.—Much undesirable cottage property, affecting health; but again little has been done in the matter.—One row of three cottages condemned; a few others repaired. One new cottage built during year. Fowl-keeping by dirty tenants a constant trouble. The Council have taken stringent measures to check the building of undrained tumble-down sheds to serve as stables.

2. *Barnet*.—No report.

3. *Berkhampstead*.—No report.

4. *Bishop's Stortford*.—The District Council is insisting on flushing-cisterns for indoor water-closets. Forty-six new houses have been built.

5. *Bushey*.—No report.

6. *Cheshunt*.—No mention is made in this year's report of the seven houses in Waltham New Town on which a special report was made

in May, 1907, by the District Medical Officer of Health, condemning the houses as uninhabitable, as retailed to you in the last County Report.

In reply to a direct request for information, the District Medical Officer of Health writes as follows :—

CHESHUNT, HERTS.

May 26th, 1908.

DEAR SIR,

Crescent Cottages.

The history of these houses, so far as I know, is as follows:—Some 13 years ago or more—my report was dated January 8th, 1890, but influenza supervened and I have no exact record of the proceedings—a closing order was obtained. Some improvements were made, and the houses were reopened.

January 15th, 1907, I advised the Council to have these houses closed under “The Housing of Working Classes Act.” In April the Council asked for a second report, and on May 7th I advised that the eight houses should be closed with a view to their demolition.

The Council decided not to take proceedings, but to try and get some improvements made. In some of their demands they were successful.

I am,

Faithfully yours,

WALTER F. CLARK.

F. E. Fremantle, Esq., D.P.H.

It was precisely for such cases that Part II of the 1890 Act was passed; owing to trade-conditions there are many unoccupied houses and no lack, therefore, of good accommodation; and yet the recommendation of the Medical Officer of Health is set aside, and insanitary houses, to which he directly attributes a high phthisis death-rate, allowed to be occupied.

Section 45 of the 1890 Act is the direct concern of your Council, according to which the District Council were bound by law to send to your Council certain information from time to time as to their action on the subject of the special report.

The Council will remember their plenary powers under this Act in cases where necessary proceedings are not taken; and it would appear of great importance that they should act in the present case by writing for information as to action taken in regard to Dr. Clark's special report, and by following it up, if necessary, with an Inquiry.

7. *East Barnet Valley.*—About sixty new houses have been erected during the year, chiefly in the direction of New Southgate.

8. *Harpenden.*—No report.

9. *Hemel Hempstead.*—No report.

10. *Hertford.*—Scheme for pulling down old cottages and providing suitable cattle-market has fallen through.

Edden's Court, adversely reported on of recent years by the District Medical Officer of Health, and further reported on by a committee, has been under consideration, and it has been decided not to deal with it at

present. New cottages have been built and quickly occupied. Housing of the poorer classes depends on their low rate of wages.

11. *Hitchin*.—Insanitary housing reported, and usual difficulty of action in absence of fit houses at same rental. Even the 1903 Act proves too expensive for adoption by Hitchin authorities; and without cheap and good housing it is useless to demolish. Radical demolition is strongly urged, both for the better housing of Hitchin workpeople and for the removal of undesirable persons. Suggestions are made for improving slum areas by enlisting the co-operation of property-owners, registering their names, and eventually throwing on them responsibility for insanitary conditions, as is proposed in Bill now before Parliament. Many houses have been repaired, and premises and yards improved by paving.

12. *Hoddesdon*.—Practically every house has been provided with suitable ashbins, and it is hoped that the Council will insist on provision of flushing-cisterns for water-closets in old houses. Three cottages have, or will have, been closed after notice under the Act.

13. *Rickmansworth*.—A closing order against the Marble Arch Cottages has now been in force for five years. No certificates for new houses.

14. *Royston*.—Overcrowding is frequent owing to lack of cottages for poor artisans; one case has been remedied. Sundry minor improvements have been effected. It is again reported that cottages at low rental for poorer artisans are too few, thus making it difficult to deal with overcrowding.

15. *St. Albans*.—A few repairs carried out.

16. *Sawbridgeworth*.—Good provision of houses for the working classes. All occupied.

17. *Stevenage*.—Two cottages in Bedwell Plash were condemned and have been pulled down. A full report on the cottage property has been made to the District Council by their Surveyor and Medical Officer of Health, but no copy has been sent as legally required to your Council.

18. *Tring*.—No report.

19. *Ware*.—Very few cottages erected during 1907. A new street has been laid out.

20. *Watford*.—A large number of houses have been built during the last year, rather of a better class than the year before. There is ample house accommodation for the labouring classes, except for such as can only afford to pay 2s. to 3s. a week, and so are confined to poor courts and alleys off High Street. 120 houses dealt with, 39 made habitable,

24 closed. Work at Ballard's Buildings, mentioned in previous County Reports, not satisfactory. These require resolute action, and the complete paving of yards.

RURAL DISTRICTS.—1. *Ashwell*.—Four new houses have been erected. New buildings are not supervised, but certificates under "The Public Health (Water) Act, 1878," are obligatory. The District Council is in favour of the proposals of the Rural Housing and Sanitation Association.

2. *Barnet*.—No report.

3. *Berkhampstead*.—No report.

4. *Buntingford*.—There is lack of suitable cottage accommodation, many being in bad condition; and no new ones are built to replace the old. There are no building byelaws to serve as an excuse for not building, and landlords are urged to build on their estates. That byelaws are not the general reason for failure to build was brought out in the Report of the recent Committee on Rural Housing.

5. *Hadham*.—No old cottages closed. Fourteen houses have been placed in habitable repair and nine new ones erected; but speaking generally the same remarks apply as for Buntingford.

6. *Hatfield*.—Housing on the whole satisfactory.

7. *Hemel Hempstead*.—*Chipperfield* Village, King's Langley Parish. This parish was the first to appeal to the County Council under "The Housing of the Working Classes Act, 1900."

It was in January, 1904, that the King's Langley Parish Council first petitioned the District Council under the Act of 1890 to remedy the want of cottages in Chipperfield. Inquiry by two independent Committees, by Medical Officer of Health, and by newly-appointed Sanitary Inspector revealed many insanitary conditions, which were set right in 1905, although old cottages could not be brought up to modern standards of construction. All were occupied, but nineteen out of seventy-nine tenants worked out of Chipperfield. Did this constitute a dearth of accommodation, calling for action under Part III of Act? The Parish Council resolved so; the District Council disagreed; and by mutual consent an appeal was made to the County Council on December 6th, 1905.

The County Council appointed Mr. County Alderman E. B. Barnard, M.P., Mr. County Councillor I. H. A. Marchand, and Mr. County Councillor D. C. Rutherford as a Committee, and a local inquiry was held at King's Langley on November 15th, 1906, and Chipperfield on November 28th, 1906, at 6 p.m. Between these two dates, the County Surveyor and County Medical Officer of Health were requested to investigate and report; every cottage was examined in detail and a full account printed.

Finally, two resolutions were passed by the District and Parish Councils' Committee on December 17th, 1906, and by the County Council on January 23rd, 1907, to the effect that if the Parish Council should pass a resolution in due form requesting the County Council to take action, as suggested, the County Council should then proceed to erect ten houses at Chipperfield. Copies of the report were duly sent to the King's Langley Parish Council. The latter, however, an election having meanwhile taken place, passed a resolution by 9 votes to 1 against any steps being taken to provide for the housing of the working classes in Chipperfield.

A contrary memorial from certain inhabitants of Chipperfield, asking for provision of cottages, was subsequently submitted by a deputation to the District and Parish Councils' Committee. In the absence of the necessary resolution of the Parish Council of King's Langley, however, the County Council had no jurisdiction to take any further steps in the matter.

8. *Hertford*.—Seven cottages at Datchworth, Bennington, and Whempstead have been closed; three at Aston which were condemned are being repaired; two at Sacombe and Watton have been made habitable. Very few new cottages have been built, beyond five at Hertford Heath.

9. *Hitchin*.—*First Garden City*, including Letchworth, Norton, and part of Willian villages, has, during the past year, been constituted the single parish of Letchworth, with a Parish Council, and is being rapidly developed. The property of 3,818 acres, with a population on it of 416, was bought in September, 1903, and is situate on either side of the Cambridge branch line from Hitchin, its borders reaching to those of Baldock on the east and within a mile of Hitchin on the west. The object of the Directors is to prove the economic, social, and sanitary value of designing from the outset an ideal city for modern conditions on practical lines, to accommodate a mixed industrial population of limited size, surrounded by a permanent belt of agricultural land. The city should thus include both an industrial and an agricultural population; and while the urban area of 1,318 acres, including 200 acres of parks and open spaces, is developed for all the purposes of a mixed industrial community, the agricultural belt of 2,500 acres is being in part prepared for small holdings and in part continued in larger farms.

The present state of development to June 1st, 1908, is as follows:—

Houses built and building	...	...	...	...	958
Factories	...	...	...	...	13
Workshops	...	...	...	...	11
Number of Shops	...	...	...	...	45

Number of Hotels—Licensed	...	...	2
,, Unlicensed	...	...	3
Places of Worship and Public Buildings	...	...	9
Population	...	... (about)	5,500
New Roads made	...	...	8 miles
Sewers constructed	...	...	11 ,,
Gas Mains laid	...	...	12 ,,
Water Mains laid	...	...	17 ,,
Gas Supply—Feet per Annum Capacity	...	...	20,000,000
Capacity of Water Reservoir	...	...	250,000 gallons
Consumption of Water, total per week	...	...	580,000 ,,
,, ,, daily per head	...	...	15 gallons
The Company supplies Electric Current for			
Power at from	...	...	1 <i>d.</i> per unit.

There is an ample supply of labour, good shops, and stores catering for the working-class trade, and ample and convenient cottage accommodation.

The rates are only 2*s.* in the £.

An experimental community of this nature gives scope for original ideas of many kinds, but is to be judged by its principles and by its result, not by the subsidiary enterprises that are an incident in its growth. As the first complete experiment in scientific town-planning the scheme is of the greatest possible importance, sanitary, social, and economic. Opinions differ as to the value of the several minor experiments here put to the test.

Such an experiment is that of *CHEAP HOUSING*. A “cheap cottages exhibition” in 1905 attracted general attention, both from the public and from the building trade. Its primary object was to demonstrate the practicability of building a five-roomed cottage for £150; but more expensive classes of building were also included. After eliminating the many defects of design, quality of material, and sound construction, one may conclude that the First Prize Cottage fairly proved the achievement at Letchworth of an adequate £150 house. It will, however, be realised that at Letchworth the price of brick and cement is low, and that the £150 does not include land, builder’s profit, or architect’s fee. If these be included, it will be seen the cost differs little from that of the County Surveyor for 10 houses to be built at Chipperfield for the County Council at £1,890.

Last year the housing experiment was continued and completed by an Exhibition of Urban Cottages and Homesteads suitable for Small Holdings. Some fifty buildings were erected in competition, and the exhibition was opened in July, 1907, by the Marquis of Salisbury, its

President. The urban cottages were entered in the following classes:—

I. Two bedrooms, living-room, and scullery; a third bedroom and parlour may be added. Cost up to £175.

II. Three bedrooms, parlour, kitchen, with sink and outside wash-house with copper. Up to £200.

III. Three bedrooms, parlour, kitchen, and scullery. Up to £240.

IV. Best artisan's cottage, not limited as to cost.

The Homesteads were of two classes:—

I. Cottage with barn, stable, cartshed, and pigstye, suitable for a small holding of 20 acres of arable land. Up to £250.

II. Small-holder's house, to contain dairy, with pigstye, shed, and cowhouse for 2 cows. Up to £300.

Further particulars of these houses may be had of the Estate Office, Letchworth, and may be found useful in the building of labourers' cottages elsewhere.

These cottages were of better class than those of the previous exhibition. They still seemed too often designed for elegance rather than for the use of the artisan; and cost was often reduced only by the use of unseasoned materials or thinness of walls. Nine inch walls are unpleasantly thin in this country. Three further conclusions may be suggested. The typical house must contain at least three bedrooms. Every bedroom should have a fireplace with cut-away sides and sloping backs, so as to provide ventilation, and when a fire is required to economise heat. Sash-windows are far preferable to casement-windows, both in the opinion of the cottager and of the advocate of public health; and they should be carried right up to the ceiling.

The growth of the Garden City is being watched in all parts of the world; it will soon apply for urban powers, and it is to be hoped the District and County Councils will also watch its growth with sympathy. Meanwhile the Company and Parish Council will be well advised to build the nucleus of an isolation-hospital, a public slaughterhouse, and a market, before vested interests have secured an impregnable position.

10. *St. Albans*.—The new byelaws as to new streets and buildings are felt to be too stringent for strictly rural areas; the matter is under consideration.

11. *Ware*.—Eleven notices served to render cottages fit for habitation. Legal proceedings seldom necessary owners closing or repairing without compulsion.

12. *Watford*.—No report.

13. *Welwyn*.—No report.

INSPECTION OF THE DISTRICTS. (Tables 27, 28.)

An improved form for registering Sanitary Inspectors' work for the Annual Report is being prepared for issue this year. It is to be hoped that it will be used in every district. Tabulation otherwise is difficult.

It is impossible for Sanitary Inspectors to undertake the work of the 1901 Factories' Act in addition to their former duties, which fully occupied their time. At present, it appears, the Sanitary Inspector has also been appointed Inspector under this Act in every District in the County where any notice has been taken of the Act. Many at least of the more populous districts should combine in the joint appointment of an Inspector for this work only.

In August, 1907, the Barnet Urban District Council lost the services of their Surveyor and Inspector, Mr. W. H. Mansbridge, by his death at the age of 72. Mr. Mansbridge had served the Barnet Authorities for twenty-years, and it was only four years ago that he retired from the service of the Rural District Council owing to advancing years. He is succeeded in the Urban Inspectorship by Mr. Wilkins.

The Watford Urban District Council have appointed Mr. Savage as an Assistant Sanitary Inspector for the inspection of meat and food in general, of slaughter-houses and markets. In the few months since his appointment he has shown most useful activity in seizing and destroying unsound food.

The following Tables 27 and 28 give a partial idea of the Inspectors' work during the past year :—

TABLE 27.—Summary of SANITARY WORK

(See also Factories and

Urban Sanitary Districts.	Complaints received.	Nuisances detected without complaint.	Nuisances abated.	Notices served.	Summonses taken out.	Convictions.	Cottages inspected.	Lodginghouses inspected.	Slaughterhouses inspected.	Bakehouses inspected.	Dairies and milkshops inspected.	Cowsheds inspected.	Workshops inspected.	Filthy houses cleansed, sec. 46 "Public Health Act, 1875."	Houses disinfected.	Overcrowding abated.	Houses placed in habitable repair.	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
1 Baldock	5	9	10	4	0	0	111	1	4	5	3	2	4	1	35	1	Several in hand ³	
2 Barnet	12	14	19	21	1	...	456	3	5	5	7	5	...	30	30	1		
3 Berkhamstead	5	...	103	39	...	...	...	...	...	9	7	...	22	54	5	...		
4 Bishop's Stortford	10	43	53	7	...	...	420	2	7	10	1	8	73	...	22	1		...
5 Bushey	24	142	116	130	8	8	134	...	2	6	7	14	12	...	28	1		...
6 Cheshunt	21	217	205	137	...	...	497	...	96	...	...	...	...	...	54	2		59
7 East Barnet Valley	22	...	69	69	...	...	...	1	4	6	14	10	22	108*	62	0		...
8 Harpenden	47	150	187	32	...	...	196	...	5	7	6	5	45	...	11	4		12
9 Hemel Hempstead	19	361	380	189	3	3	274	13	24	46	30	24	...	25	39	6		3
10 Hertford	30	36	60	5	...	...	656	...	8	11	7	7	18	8	15	1		16
11 Hitchin	10	67	67	4	...	...	305	...	12	23	16	8	67	...	14	6		15
12 Hoddesdon	8	37	45	...	...	...	231	...	8	6	13	13	36	...	11	2		...
13 Rickmansworth	29	24	51	20	...	...	21	...	7	10	10	7	42	5	16	2		...
14 Royston	16	18	33	1	...	...	260	...	3	5	4	5	53	2	3	1		12
15 St. Albans	30	276	295	257	...	...	519	3	11	22	45	...	134	...	125	2		28
16 Sawbridgeworth	15	35	35	...	...	...	154	...	1	4	1	4	32	2	9	2		2
17 Stevenage	16	12	28	7	...	...	114	...	10	8	12	12	8	...	5	1		...
18 Tring	2	44	43	11	...	...	130	2	9	7	5	9	40	...	38	...		...
19 Ware	24	84	101	62	...	...	100	...	4	10	2	5	95	1	2	4		...
20 Watford ... ..	...	304	791	1369	...	...	1159	48	361	45	259		293	14	159*	15		...

* Rooms.

CHESHUNT.—59 new dustbins provided.

EAST BARNET VALLEY.—16 new dustbins provided.

HEMEL HEMPSTEAD.—49 markets inspected, 11 accumulations removed, 22 drains tested (water), 10 drains tested (smoke).

(Workshops Tables.)

	Houses closed.	Houses erected or rebuilt for which Water "Certificates" were sought.	"Certificates" granted.	"Certificates" deferred.	Wells sunk or improved supplies of water afforded.	Wells cleansed or repaired.	Wells closed.	Houses connected with sewers.	Houses connected with water-mains.	Earth, pail, or improved privies constructed, or existing privies altered.	Privies and W.C.'s repaired; W.C.'s supplied with water.	Cisterns cleansed, repaired, or covered.	Animals improperly kept removed.	Samples of water taken for analysis.	Compensation paid for destruction of infected bedding.	Seizure of unsound meat, etc.	Canal boats inspected.	Inspectors.
	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	
1	...	1	1	...	...	...	1	1	97	0	...	0	3	0	0	0	...	Mr. William Munday.
2	88	75	...	9	...	1	1	...	...	...	Mr. W. H. Mansbridge.
3	17	17	...	23	...	...	...	...	...	...	Mr. E. H. Adey.
4	...	47	...	...	...	...	1	46	46	3	46	2	1	1	...	...	23	Mr. William Tripp.
5	2	2	2	53	54	2	26	...	9	1	...	1	..	Mr. E. Ryder.
6	9	49	1	27	2	...	...	...	Mr. F. Sykes, A.S.I.
7	...	45	...	...	...	...	...	0	...	...	68	...	...	...	...	...	...	Mr. W. G. Cook.
8	3	2	...	2	7	10	3	4	1	...	...	...	Mr. J. H. Leverton, M.S.I.
9	1	...	...	...	...	...	...	...	...	14	30	...	9	3	...	1	...	Mr. S. Rawson.
0	14	...	...	...	...	1	...	59	Mr. Russell G. Austin.
1	3	...	68	69	5	10	...	12	...	...	...	...	Mr. Arthur T. Blood.
2	2	23	23	...	...	...	...	23	23	...	3	...	...	...	...	...	...	Mr. William H. Flood.
3	16	40	...	...	...	2	2	1	2	...	Mr. Albert Freeman.
4	1	15	13	...	...	...	1	...	...	...	...	Mr. W. J. Webb.
5	1	...	...	...	...	...	...	1	...	...	30	96	4	...	...	...	...	Mr. A. Simpson Macara.
6	...	4	...	...	...	1	...	3	...	3	...	...	...	...	...	...	1	Mr. A. T. Watts.
7	3	34	34	...	1	2	...	34	33	...	1	...	...	1	...	...	...	Mr. J. Gillespie.
8	2	...	...	...	5	2	...	4	...	16/-	...	40	Mr. W. H. Thomas.
9	...	8	8	...	...	...	...	8	11	5	48	...	2	2	...	...	...	Mr. H. Fox Hill.
0	81	...	2	...	...	...	...	Mr. S. Jump.

ROYSTON.—32 travellers' vans visited.

ST. ALBANS CITY.—9 ashpits abolished, 85 ashbins provided.

TRING.—7 offensive accumulations removed.

WATFORD.—26 inhabited vans inspected, 25 offensive trades, 11 ice-cream manufacturers, 387 house drains tested with smoke.

TABLE 28.—Summary of SANITARY

(See also *Factories and*

Rural Sanitary Districts.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
		Complaints received.	Nuisances detected without complaint.	Nuisances abated.	Notices served.	Summonses taken out.	Convictions.	Cottages inspected.	Lodginghouses inspected.	Slaughterhouses inspected.	Bakehouses inspected.	Dairies and milkshops inspected.	Cowsheds inspected.	Workshops inspected.	Filthy houses cleansed, sec. 46 "Public Health Act, 1875."	Houses disinfected.	Overcrowding abated.	Houses placed in habitable repair.
1.	Ashwell	9	26	35	...	...	...	86	...	5	7	6	20	7	...	17	...	...
2.	Barnet	9	35	39	39	...	...	659	...	4	4	10	25	5	...	28	...	1
3.	Berkhampstead A	5	112	...	30	...	...	...	...	...	5	1	...	12	...	3	...	...
	Berkhampstead B	3	15	18	12	...	...	90	..	1	5	2	13	5	...	11	1	6
4.	Buntingford ...	5	52	50	12	...	...	300	1	4	7	3	13	28	3	18	2	5
5.	Hadham	10	145	135	22	...	...	430	...	25	9	...	24	36	...	16	...	14
6.	Hatfield	68	53	80	3	...	...	108	2	3	8	16	14	21	30	11	2	11
7.	Hemel Hempstead	8	219	228	64	...	...	184	...	12	20	36		...	9	19	7	2
8.	Hertford	4	37	37	17	...	...	380	...	3	8	...	39	51	1	13	7	11
9.	Hitchin	4	80	84	15	...	...	1180	...	9	17	21	13	64	2*	...	4	1
10.	St. Albans	12	30	45	35	6	6	100	...	9	21	3	40	68	...	41	...	...
11.	Ware	37	110	139	74	...	...	364	...	7	16	...	39	94	19	23	7	29
12.	Watford	63	...	2	171	...	...	739	...	...	...	...	...	...	21	87	7	...
13.	Welwyn	10	40	39	1	...	...	30	1	3	4	4	5	...	...	3	1	...

* See Watford Rural Water Supply.

BERKHAMPSTEAD A.—3 privies cleaned, 1 cesspool emptied and cleaned.
BERKHAMPSTEAD B.—2 offensive accumulations removed.

WORK done in the Rural Districts, 1906.

(Workshops Tables.)

18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	Inspectors.	
Houses closed.	Houses erected or rebuilt for which Water "Certificates" were sought.	"Certificates" granted.	"Certificates" deferred.	Wells sunk or improved supplies of water afforded.	Wells cleansed or repaired.	Wells closed.	Houses connected with sewers.	Houses connected with water-mains.	Earth, pail, or improved privies constructed or existing privies altered.	Privies and W.C.'s repaired; W.C.'s supplied with water.	Cisterns cleansed, repaired, or covered.	Animals improperly kept removed.	Samples of water taken for analysis.	Compensation paid for destruction of infected bedding.	Seizure of unsound meat, etc.	Canal-boats inspected.		
...	4	3	...	...	...	...	...	...	2	2	...	...	...	£	s.	d.	Mr. G. Baker.	
...	...	...	...	...	...	...	10	10	20	15	...	3	...	...	...	...	Mr. Tom England.	
...	...	...	...	...	...	...	13	...	...	12	1	...	...	...	...	...	Mr. E. H. Adey.	
I	...	...	...	...	...	2	6	2	8	...	...	I	...	0	12	0	38	Mr. W. A. Thomas.
...	...	...	...	2	...	...	5	25	14	23	I	I	...	...	...	...	...	Mr. E. G. Thody.
...	9	7	...	I	...	...	10	...	...	...	...	...	...	...	...	...	...	Mr. E. T. Watts.
...	21	21	...	1	5	...	4	21	9	3	Several	I	2	0	6	11	...	Mr. H. T. Sidwell, F.I.S.E.
...	25	25	...	5	...	3	3	...	17	...	...	11	15	...	...	50	...	Mr. S. Rawson.
5	26	26	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Mr. J. W. Riggs.
...	350	350	...	2	3	...	320	320	18	20	...	I	30	...	...	...	...	Mr. J. C. Hooper.
...	...	...	...	3	...	3	...	12	11	8	...	2	3	...	...	...	...	Mr. R. Blair Macara.
...	32	32	...	19	2	...	9	31	26	17	16	I	6	...	...	38	...	Mr. H. J. Jackson.
I	..	24	...	...	...	...	...	40	110	9	...	I	11	...	...	129	...	Mr. John Robinson.
...	5	5	...	...	...	...	2	7	...	5	...	...	2	...	...	...	...	Mr. C. Deards.

HEMEL HEMPSTEAD.—24 offensive accumulations removed.
 WATFORD.—32 accumulations or closets removed.
 WELWYN.—6 pumps repaired.

TRADE-PREMISES UNDER SUPERVISION.

Dairies, Cowsheds, and Milkshops.—The movement for pure milk has been much strengthened by the publication in January, 1907, of “The Second Interim Report of the Royal Commission on Tuberculosis.” Amongst its conclusions are the following paragraphs:—

“Bovine animals and man can be reciprocally infected. A very large proportion of tuberculosis contracted by ingestion is due to tubercle bacilli of bovine source.”

“A very considerable amount of disease and loss of life, especially among the young, must be attributed to the consumption of cow’s milk containing tubercle bacilli.”

“The presence of tubercle bacilli in cow’s milk can be detected, though with some difficulty, if the proper means be adopted, and such milk ought never to be used as food.”

“There is far less difficulty in recognising clinically that a cow is distinctly suffering from tuberculosis, in which case she may be yielding tuberculous milk. The milk coming from such a cow ought not to form part of human food, and indeed ought not to be used as a food at all.”

“Our results clearly point to the necessity of measures more stringent than those at present enforced being taken to prevent the sale or the consumption of such milk.”

Investigations of milk-supply to the large towns continue to reveal impurity in unappetising degree. Thus of 24 samples of milk taken on arrival at Liverpool Street station last year, only 54 per cent. were fairly clean, 8 were tuberculous, and 38 were dirty and unsatisfactory. In Birmingham a series of examinations of milk from cowkeepers in the city showed no tubercle; while 180 samples of milk imported from the country outside showed 24 samples, or 14 per cent. tuberculous.

The present milk-supply of Hertfordshire is supervised by Sanitary and Veterinary Inspectors and by District Medical Officers of Health, but with widely varying standards of efficiency. The County Council wish to secure improvements in the milk-supply, and at the same time to be in a position to resist any attempt of London Authorities to control interests which should be efficiently controlled by the Hertfordshire Sanitary Authorities.

The following proposals have therefore been made to the District Councils:—(1) That the registers of milk-premises be kept up-to-date by the Sanitary Inspectors, to include especially all shops where milk is retailed in small quantities, incidentally to other business; (2) that the regulations of the Sanitary Authorities as to cattle and milk-premises be

brought up-to-date in accordance with "The Dairies, Cowsheds, and Milkshops Order, 1899," and distributed to all on the Register; (3) that "The Infectious Diseases Prevention Act, 1890," giving power to close milk-premises, be adopted and put in force, whenever possible; (4) that the Sanitary and Veterinary Inspectors be instructed to give facilities to the County Medical Officer to visit the milk-premises and watercress-beds under their control, and acquaint himself with their system of inspection. Your Medical Officer is in touch with the District Medical Officers of Health upon the subject, and it is important that he should have power to work in conjunction with the County Medical Officer of Health for London. This the Hertfordshire County Council obtained in the last Session of Parliament.

At the same time the Education Agricultural Sub-Committee of the County Council, in conjunction with the Herts Chamber of Agriculture, have provided lectures by Professor Lloyd and others to farmers on the facts of dirt and tuberculosis in milk and in cattle, and how to avoid them. This practical policy is likely to be of far greater value than any amount of legislation and regulation.

London Demands.—The *London County Council* introduced into Parliament last year another *General Powers Bill*, which included one part to deal with the milk supply. All the model clauses were included, practically *verbatim*. The Medical Officer of Health of the London County Council, or his Deputy, together with a Veterinary Surgeon, was to be enabled to inspect any dairy supplying milk to London, if he believed it likely to cause tuberculosis, and to take samples, in any case, provided he had obtained an order from "any Justice of the Peace for Hertfordshire," which expression includes several gentlemen, such as the London Stipendiary Magistrates, not resident in the County. The dairyman was to assist the Medical Officer of Health in his inspection, under a penalty of £5, and if the Medical Officer of Health reported that in his opinion tuberculosis was likely to be caused from consumption of milk from that dairy, the London County Council might—unless he appeared before them and showed reason to the contrary—prevent the dairyman from supplying any milk to London. Notice of such an order was to be sent to the County and District Councils concerned. The dairyman might appeal against the Order to a Metropolitan Police Court or to the Board of Agriculture. Compensation was to be paid for an Order made without due cause or for unreasonable refusal to withdraw an Order. The London County Council were to have similar powers if their Medical Officer of Health only suspected that the milk might cause infectious disease; but in this case the dairyman was not to be entitled either to appeal or compensation. Similar powers were to be given them at railway stations

Moreover, they were to have power to exact details as to origin of his milk from anyone supplying a house in which lay any person suffering from infectious disease attributable to milk. Every dairyman sending milk to London was to notify all cases of infectious disease, among persons connected with his dairy, to the London Medical Officer of Health. Any person suffering from an infectious disease and yet milking a cow with a view to human consumption in London was to be liable to penalties. Considering the sensitive nature of the milk-trade, the suspicion that his milk was not good would probably be sufficient to deprive him also of his local custom. The London Authority would thus obtain complete powers for the extinction of any Hertfordshire dairy on a single opinion, against which the dairyman has no direct constitutional redress.

Similar Bills, promoted by the London County Council in 1902 and 1905, were thrown out largely owing to the opposition of Metropolitan Boroughs and of the Hertfordshire and Middlesex County Councils.

Action of the Hertfordshire County Council.—After a conference of Clerks and Medical Officers of Health of the various Districts throughout the County in October, 1906, the Hertfordshire County Council came to the opinion that, in the interest of the consumer, the Local Authorities should be able to guarantee the good quality of the milk-supply; and that in the interest of the dairyman this should be effected by officials of the District or County Council on which both the producer and the chief consumers of any milk are represented. They considered that the matter should be dealt with by a general Act, conferring all necessary powers on County Councils, who should enforce them, each within their own County.

Before this Bill came before the Police and Sanitary Committee of the House of Commons on May 29th, 1907, the London and other County Councils represented agreed on the following amendments:—

- (1) Power to prohibit supply from one particular cow found to be suffering from a tuberculous udder ;
- (2) Notice of inspection to the County Medical Officer of Health ;
- (3) Powers to the London County Council to pay expenses of farmers summoned to London ;
- (4) Copies of all reports to be sent to farmer and County Council concerned.

The Local Government Board opposed these amendments, both on the general objection to a disturbance of the "model clauses" and to each in particular. Amendments 1, 3, and 4 in so far as it

related to the farmer, were inserted; 2, and 4 in so far as it related to the County Council, were rejected.

The House of Lords Committee, however, presided over by the Earl of Dartrey, inserted the amendments numbered 2 and 4.

The amendments are of great importance in the interests of the farmers; and the County Council have instructed their Medical Officer to attend all inspections made by the London County Officers in Hertfordshire under this Act.

In the present Session of Parliament, the London County Council introduced a Bill asking for very considerable extensions of their powers with regard to milk supply in the County of Hertford and elsewhere; but an instruction was carried in the House on second reading that there should be no extension of what are known as The Model Milk Clauses, pending general legislation. In view of this the whole of the Milk Clauses in the London County Council Bill were withdrawn by the promoters.

The Finchley Urban District Council have this year promoted a General Powers Bill in which they ask for the Model Clauses. The Hertfordshire County Council petitioned against the Bill and asked to have the same amendments inserted for their protection as were inserted in the London County Council Act of 1907. These amendments were not inserted by the Police and Sanitary Committee, but the House of Lords Committee, on the application of the Hertfordshire County Council, inserted them.

LOCAL CONDITIONS.—URBAN.

1. *Baldock*.—No difficulty in enforcing the cleansing, etc. All animals healthy. No milk from this district sent to London.

2. *Barnet*.—Attention of Authority called to Order of 1899, and need for Council to instruct their Inspector to call in a Veterinary Surgeon.

3. *Berkhampstead*.—Council have arranged for the employment of a Veterinary Surgeon when necessary.

4. *Bishop's Stortford*.—Inspected six times each. All fairly well kept.

5. *Bushey*.—Cleansed and whitewashed half-yearly. Veterinary surgeon when necessary.

6. *Cheshunt*.—No report.

7. *East Barnet Valley*.—New regulations adopted in July. One

cowshed improperly kept, and action taken. Milk supply from outside districts. Milkshops and dairies in good condition.

8. *Harpenden*.—No milk sent to London. Most cowsheds modern and properly drained; few old and of wood, in respect of one of which structural alterations and improvements have been made. About 100 cows; quarterly inspections. Medical Officer may call in veterinary surgeon. Milk now delivered in glass bottles in some cases.

9. *Hemel Hempstead*.—Most cowsheds in cleanly state, but several unsatisfactory on outskirts of town. Improvements made in several instances. Better ventilation has been secured in certain cases. One cowkeeper fined £5 for overcrowding.

10. *Hertford Borough*.—Quarterly report presented. Premises satisfactory. Appointment of veterinary surgeon fallen through.

11. *Hitchin*.—Veterinary inspector has been appointed. Medical Officer calls attention to its being important to refrigerate the milk before transit.

12. *Hoddesdon*.—Room for improvement in one or two cases.

13. *Rickmansworth*.—Power to call in veterinary surgeon.

14. *Royston*.—A defective dairy floor has been satisfactorily paved.

15. *St. Albans City*.—Veterinary Inspector inspects cows at least monthly, orders isolation of any suffering from tuberculosis of udder, and prohibits sale of their milk. Medical Officer of Health is strongly of opinion that milk from all tuberculous cows, whether the udders are affected or not, should be prohibited from sale. It would be interesting in future Reports to be informed of number thus isolated.

16. *Sawbridgeworth*.—Clean and satisfactory.

17. *Stevenage*.—Satisfactory.

18. *Tring*.—Premises inspected and fairly well kept. New regulations. Steps taken for carrying out Order of 1889—not apparently that of 1899.

19. *Ware*.—Better kept than formerly.

20. *Watford*.—One cowshed closed and removed from the district. Additions made to another, and yards paved with impervious materials. Dairies clean and satisfactory. Appointment of an additional Inspector for this work recommended and for inspection of slaughterhouses. On his representation it should be practicable to call in a veterinary surgeon, and, in cases of doubt, have a sample of milk from any cow examined bacteriologically. Regulations not apparently up to date.

RURAL.

1. *Ashwell*.—

2. *Barnet*.—It is strongly advised that the Council empower the Sanitary Inspector to obtain assistance of a veterinary surgeon when deemed necessary; and that they revise the present regulations according to the important Order of 1899, as it would be well to enforce certain important points in regard to cleanliness of milkers' hands, etc.

3. *Berkhampstead*.—Premises regularly inspected.

4. *Buntingford*.—

5. *Hadham*.—

6. *Hatfield*.—"Sufficient inspection," courted by farmers; satisfactory. In April, 1908, the District Medical Officer of Health made a special report on milk premises registered under the order in the district, 17 in number. Two were still awaiting registration on account of unfavourable conditions found by the Medical Officer, who suggests that the sanitary inspector should record dates of his visits and remarks. The conclusion of the report is worth quoting.

"On the whole, so far as my own observation goes, the premises
 "are fairly well kept in the cases of the small purveyors, and very well
 "kept so far as the large purveyors are concerned. It appears to me,
 "however, that it is very desirable that a veterinary surgeon should be
 "employed to inspect the cows. I have doubts as to whether sufficient
 "care is taken by those who milk as to cleanliness of their own hands
 "or the teats of the animals milked. So far as the cleanliness of the
 "vessels into which the milk is received and the general care of
 "handling the milk, I have never myself detected any want of care.
 "On the other hand, it is quite certain that unless those who are
 "responsible themselves take the trouble to attend to the details
 "necessary, it is impossible by mere inspection to secure such care as
 "is necessary for the protection of the milk. It is only possible to
 "secure by inspection a reasonable amount of air-space and ventilation
 "in the cowsheds, and a proper arrangement of drains both in them
 "and the dairies where the milk is kept. I have found no reason to
 "complain of dirtiness in the dairies. As I am constantly in the various
 "parts of the district, it is usually not long before I hear of new dairies;
 "but of course, as in the case of the Swanley Bar Farm, I do not at once
 "hear of a farmer who is selling milk. At the present time I believe
 "all persons requiring registration are either registered or are in
 "process of registration."

7. *Hemel Hempstead*.—Veterinary surgeon when necessary.

8. *Hertford*.—The majority of them are very well kept.

9. *Hitchin*.—Most have been inspected and much done to improve the condition of the worst—an important point. Veterinary Inspector appointed, but no diseased animals noted. On the Garden City Estate a “very up-to-date” Company supplies guaranteed pure milk.

10. *St. Albans*.—Regular visits by Veterinary Inspector and Inspector of Nuisances.

11. *Ware*.—Three cowsheds were found to be unsatisfactory, and notice served in each case. Generally, these premises are better kept than formerly.

12. *Watford*.—Veterinary surgeon when necessary.

13. *Welwyn*.—Veterinary surgeon when required.

In view of the Report of the Royal Commission on Tuberculosis and the promised Government Bill, largely instigated by the London consumer, more stringent Sanitary and Veterinary Inspection and stricter registration and compliance with the regulations will be advisable; and the County Medical Officer should in future be able to give more time to this work.

CONCLUSIONS.

Recommendation.—Stress must be laid on the extreme importance of obtaining a pure milk-supply and of the advisability and practicability of doing so at the present time, now that the air has been cleared by the Report of the Royal Commission on Tuberculosis, that public opinion has been strongly stirred on the subject, and that a Government Bill is imminent, instigated largely by the London consumer.

The present regulations and other measures in force are adequate to secure most of the required improvements, if they were put in force. But at present the County Council has no idea as to where they are and where they are not put in force; they are unable, therefore, to take requisite action.

If put in possession of this knowledge, the County Council could ensure a reform of the very first importance in the supply of one of the most vital and yet deadliest of foodstuffs.

The County Medical Officer hopes to inspect milk premises more frequently in future in the company of the Sanitary Inspectors, and to report to the District and Parish Councils' Committee accordingly. But he can do so only by courtesy, having no rights in the matter.

The policy of higher education both in schools and by lectures, so as to spread the requisite knowledge amongst the agricultural community, is that to which most importance must be attached.

Slaughterhouses.—The scandals lately created in the United States by a Federal Report on the meat-packing industry at Chicago, the general grounds of which your Medical Officer can endorse from private experience, has strongly raised public opinion on the subject of the meat-trade, and it is urgently suggested that the County Council consider what steps they can take in the matter.

Such a Bill as “The Public Slaughterhouses Bill,” introduced into the House of Lords on July 19th, 1906, would facilitate proper meat inspection, humane slaughtering, and the provision of more suitable premises.

The provision of a public abattoir has constantly been urged in the reports for *Hertford Borough*, where the scheme for a new market afforded an exceptional opportunity, for *Rickmansworth*, *St. Albans City*, *Ware*, and *Watford*; the unsuitability of the surroundings of many of the present slaughterhouses, and the difficulties in the way of efficient inspection, are this year again widely commented on. A most excellent opportunity for a similar provision occurs in Garden City, which may be well advised to take early steps in the matter. The following facts are recorded:—

URBAN DISTRICTS.—*Baldock*, 4, and one used temporarily; two well situated, but other two in cramped positions; temporary slaughterhouse unsuitable in every way. *Barnet*, 5 registered, none licensed. *Berkhampstead*, 7 registered, none licensed. *Bishop's Stortford*, 7, inspected periodically. *Bushey*, 2. *Cheshunt*, 96 inspections. *East Barnet Valley*, 4. *Harpenden*, 6. *Hemel Hempstead Borough*, 13. *Hertford Borough*, 8, old and badly situated, one not used for some months. *Hitchin*, 13 registered. *Hoddesdon*, 8, old but clean, inspected quarterly. *Rickmansworth*, 7, now connected with sewers. *Royston*, 3. *St. Albans*, 11. *Sawbridgeworth*, 1. *Stevenage*, satisfactory. *Tring*, 7, six registered and one licensed as now required for all new slaughterhouses. *Ware*, 7, on the whole very well kept. *Watford*, 361 inspections; new Meat Inspector successful in detecting a considerable amount of unsound food, which has been destroyed.

RURAL DISTRICTS.—*Ashwell*, 5 inspected; *Barnet*, 2; *Berkhampstead*, 3, none licensed; *Buntingford*, 4; *Hadham*, 25; *Hatfield*, 3; *Hemel Hempstead*, 7; *Hertford*, 3; *Hitchin*, 8; *St. Albans*, now registered, 9 inspected; *Ware*, 7; *Watford*, 3; *Welwyn*, 3.

Common Lodginghouses. — URBAN DISTRICTS. — *Barnet*, 2, and 1 unregistered public-house, reported annually without any effect; *Berkhampstead*, 1, regularly inspected; *Bishop's Stortford*, 2, inspected monthly; *Cheshunt*, none; *Hemel Hempstead*, 4, regularly inspected and visited at midnight to guard against overcrowding; *Hitchin*, 3; *St. Albans*,

3, and 1 unregistered; *Tring*, 2; *Hertford Borough* and *Ware*, under supervision of Superintendent of Police, quarterly report, well kept and satisfactory, one recently discontinued in Hertford Borough; *Watford*, 3, registered, clean and satisfactory; one unregistered house recently closed.

RURAL DISTRICTS.—*Hemel Hempstead* and *Watford*, none; *Hatfield*, 2; *Hertford*, under supervision of Superintendent of Police; *Welwyn*, 1.

Pressure should be brought to bear in the *Barnet* case, reported for several years. The offence is punishable by a fine of 40s. a day by Section 86 of "The Public Health Act, 1875." A letter to the District Council may again be suggested.

Factories and Workshops.*—By the Act of 1901 these come within the domain of Sanitary Authorities, throwing on them much new work and responsibility. It is now incumbent on the District Councils to keep a register of all workshops within their districts.

The District Council is made the Authority responsible for the sanitary condition of the *workshops and workplaces* in its district, as H.M. Factory Inspector is for the sanitary condition of *factories*, except as to escape from fire and as to sanitary accommodation, which fall to the Sanitary Authorities under the Public Health Acts.

The District Councils are also made responsible for carrying out special sanitary regulations in regard to bakehouses, and are given important powers of controlling the conditions under which certain classes of work is done in the homes of the workers. These last powers aim at the prevention of *homework* being done in dwellings which are injurious or dangerous to the health of the workers themselves, e.g., through overcrowding, want of ventilation, or other insanitary conditions, or in premises where there is dangerous infectious disease.

The lists received should be examined by the District Council; and the name and place of employment of every outworker included in any such list, whose place of employment is outside its district, should be forwarded to the Council of the district in which his place of employment is.

* Broadly speaking, the term *factory* includes all places where mechanical power is used for manufacture; and also certain specified manufacturing works, where power is often employed, whether it be there used or not; the term *workplace* is indefinite, and means any place where people assemble to do work permanently, whether a workshop or not, such as a stable. Under "The Factory and Workshops Act, 1907," laundries carried on by way of trade or for the purpose of gain, or carried on as auxiliary to another business or incidentally to the purposes of any public institution, are to be treated as non-textile factories and workshops within the meaning of the Act of 1901. This is important in that now, for the first time, hotels and other institutions which carry on laundry-work are amenable to the Factory Acts.

It is important that the Sanitary Authorities should be urged to undertake their duties under the Act, which at present they are loath to do, owing in part to ignorance of its importance, in part to the expense involved. It is obvious that the conditions under which the labouring, or indeed any other, classes work by day is for them at least as important as those in which they sleep at night. Indeed, for adults it may be said that factories and workshops are the chief exchange of epidemic infection, as schools are for children; and so much the more important because of the family usually dependent on each worker, by whose sickness even for one day great distress may be caused.

Before the passing of the Act the Sanitary Inspectors had as much as they could do in carrying out their duties in a proper manner. In consequence of the Act the duties are nearly doubled, and this most necessary work can hardly be carried out without help. It therefore seems obvious that it will be necessary for the Councils to appoint Inspectors specially for carrying out this work; and I hope the County Council will devise some method of co-operation between Districts in the matter without delay.

The following Tables, 29 and 30, are prepared from the Annual Reports now filled in by every District Medical Officer of Health on forms prepared by Home Office.

Table 31 has been most kindly prepared expressly for this Report by H.M. Inspector of Factories.

The lists of outworkers received can only be a minority of those employed. Employers are bound by the Act to furnish these lists half-yearly, and efforts should be made to ensure this being done. Names of employers and other information will kindly be supplied to any Medical Officer of Health who applies to Mr. C. F. Wright, H.M. Inspector of Factories for the North London District of the Southern Division, 39, Victoria Street, S.W.

A list of certifying factory-surgeons in Herts is included this year for the first time. They are appointed by H.M. Inspectors of Factories, and it is their duty (1) to certify as to fitness for employment of children and young persons about to be employed, (2) to investigate accidents, (3) to investigate cases of industrial poisoning, in factories and workshops. The first of these duties is very analogous to the inspection on leaving school to be conducted by the school Medical Officers under "The Education (Administrative Provisions) Act, 1907"; and it may be considered whether the County Council should not employ them for work in the schools, should they in the future require the assistance for this work of practitioners who are not District Medical Officers of Health.

126 TABLE 29.—FACTORIES and WORKSHOPS in the *Urban* Districts.

1. URBAN DISTRICTS.	2. No. Workshops etc., on Register	3. Number of Inspections.				4. Bakehouses		5. Defects found (not including Bakehouses).		6. Outworkers.	
		Factories.	Workshops.	Work-places.	Home-workers.	Number.	Under-ground (in use).	Under P. H. A.	Under F. W. A.	Lists.	Workers.
1 Baldock	10	2	5	...	...	5	...	...	...	..	...
2 Barnet... ..	...	...	...	...	...	...	...	...	...	...	...
3 Berkhamstead...	44	3	18	...	...	9	3	18	...	3	15
4 Bishop's Stortford	76	45	304	...	38	10	...	1	1	12	63
5 Bushey	27	8	54	...	...	6	...	4	...	...	...
6 Cheshunt	41	5	73	...	27	16	...	20	4	24	53
7 East Barnet Valley	25	9	60	...	6	6	3	2	...	6	3
8 Harpenden... ..	45	4	41	12	10	...	...	11	1	2	18
9 Hemel Hempstead	49	...	32	...	39	...	...	4	...	1	80
10 Hertford	57	...	18		...	12	...	1	...	2	3
11 Hitchin	65	27	65	...	...	...	...	6	...	1	7
12 Hoddesdon	47	12	115	...	...	6	...	5	...	...	...
13 Rickmansworth...	42	42		...	...	10	...	...	...	...	2
14 Royston	53	0	112	...	18	5	...	0	0	9	9
15 St. Albans	114	50	114	20	9	24	6	8	...	25	535
16 Sawbridgeworth	32	...	...	16	...	4	...	...	...	...	...
17 Stevenage... ..	54	17		...	...	...	...	...	...	...	...
18 Tring... ..	44	40		...	...	...	1	...	2	...	...
19 Ware	95	...	190	...	...	10	...	18	3	4	2
20 Watford	232	35	267	36	53	45	11	97	...	22	46

BARNET.—No steps taken to carry out the Act of 1901.

BERKHAMPSTEAD.—The appointment of an Inspector solely for the inspection of Factories and Workshops is again advised; one to act for several districts is suggested.

BISHOP'S STORTFORD.—Dressmakers, 14; Bakehouses, 10; Butchers, 7; Builders, 7; Clothiers, 6; Bicycle-makers, 5; Laundries, 4; Upholsterers, 3; Basket-makers, 1; various, 19.

HARPENDEN.—Straw Hat-making.

HERTFORD.—Bakers, 12; Tailors, 2; Dressmakers, 2; Builders, 4; Breweries, 3; Printing Works, 3; Smiths, 3; Upholsterers, 2; Laundries, 4; Bootmakers, 2; Coachbuilders, 2; Harness-makers, 2; various, 8.

HODDESDON.—Bakehouses, 6; Bootmakers, 9; Dressmakers, 3; Milliners, 1; Tailors, 2; Harness-makers, 2; Printers, 1; Cycle-shops, 2; various, 21.

RICKMANSWORTH.—Bakeries, 10; Milliners and Dressmakers, 10; Builders and Plumbers, 5; Wheelwrights and Blacksmiths, 3; Cycle-shops, 3; Tailoring, 3; Boots, 3; various, 5.

ROYSTON.—No factories in this district where more than forty are employed. *Workshops*; Bakehouses, 5; Bootmakers, 5; Bicycle-makers, 4; Coachbuilders, 2; Dressmakers, 8; Furniture-maker, 1; Masons, 2; Milliner, 1; Plumbers, 3; Photographer, 1; Saddlers, 3; Tailors, 3; Watchmakers, 2; Wheelwright, 1; Cabinet-makers and Upholsterers, 2.

TABLE 30.—FACTORIES and WORKSHOPS in the *Rural* Districts. 127

1. RURAL DISTRICTS.	2. No. Workshops etc., on Register	3. Number of Inspections.				4. Bakehouses.		5. Defects found (not including Bakehouses).		6. Outworkers.	
		Factories.	Workshops.	Workplaces.	Home-workers.	Number.	Underground (in use).	Under P. H. A.	Under F. W. A.	Lists.	Workers.
1 Ashwell	44	...	...	...	...	8	...	...	...	...	...
2 Barnet... ..	4	4	3	...	...	4	...	...	...	...	...
3 Berkhampt'st'd	(1) 8	2	10	...	...	5	...	10	...	1	2
	(2) 10	...	...	23	...	6	2	1	...	...	...
4 Buntingford ...	28	...	56	...	...	7	...	2	...	...	...
5 Hadham	45	...	90		...	9	...	...	...	...	...
6 Hatfield	22	2	2	2	...	...	...	1	...	...	...
7 Hemel Hempstead	39	...	46	...	39	9	1	3	...	5	{ 64 [†] 1*
8 Hertford	51	...	51	...	...	9	...	3	...	...	...
9 Hitchin	53	17	53	...	...	...	...	...	...	...	...
10 St. Albans	68	23	68	...	...	21	1	...	...	...	...
11 Ware	94	...	120		...	16	...	1	...	...	...
12 Watford	61	...	...	...	..	16	...	...	...	...	...
13 Welwyn	9	...	...	...	...	4	...	...	...	...	...

* Contractor. † Workmen.

URBAN DISTRICTS *continua*.

ST. ALBANS.—Bakehouses, 24; Dressmakers, 20; Tailors, 10; Laundries, 9; various, 51. The factories (50 in number) include Straw Hat Factories, Boot Factories, Silk Mills, Printing Works, Laundries, etc.—all clean and well ventilated, with sufficient air-space; sufficient and proper sanitary accommodation; provisions for fire adequate.

SAWBRIDGEWORTH.—Bakehouses, 4; Bootmakers, 4; Tailors, 3; Dressmakers, 3; Harness-makers, 2; Builders, 2; Wheelwrights, 2; Millers, 1; Blacksmith, Bicycle-repairer, and Tinsmiths, 4; Maltings, 7. No "wet processes" are carried on in any of the workshops. Sanitary condition of workshops generally satisfactory.

WARE.—Maltings, 37; Bakehouses, 10; Milliners, 3; Laundries, 2; Bootmakers, 8; Smiths, 4; Wheelwrights, 3; Harness-makers, 4; Tailors, 3; Dressmakers, 6; Cycles, 3; Builders, 4; Plumbers, 3; various, 5.

WATFORD.—Factories, 30; Bakehouses, 45; Dressmakers and Milliners, 30; Tailors, 10; Bootmakers, 11; Wheelwrights, Smiths, Cycles, Saddlers, etc., 36; other trades, 70.

RURAL DISTRICTS.

ASHWELL.—Bakers, 8; Butchers, 5; Blacksmiths, 8; Bootmakers, 7; Carpenters, 6; Saddlers, 2; Tailors, 4; Wheelwrights, 4; Dressmakers and Milliners, a number. No person yet appointed under the Act to carry its provisions into effect. No systematic inspection.

BARNET.—Also 4 Bakehouses.

BERKHAMPSTEAD.—(1) Retail Bakehouses, 5; Saw Mills, 2; Brush Works, 1.

(2) Bakehouses, 6; Smiths, 2; Carpenters, 2.

BUNTINGFORD.—Harness Makers, 2; Laundries, 2; Shoemakers, 3; Engineers, 1; Bakers, 7; Cycle-makers, 1; Watchmakers, 1; Tailors, 3; Dressmakers, 4; Milliners, 2; Tanner, 1; Wheelwrights, 2.

HADHAM.—Bakehouses, 9; Blacksmiths, 9; Wheelwrights, 8; Bootmakers, 4; Builders, 4; Harness-makers, 2; Dressmakers, 2; Brickmakers, 2; Engineers, 3; Breweries, 2.

HERTFORD.—Laundries, 13; Smiths and Wheelwrights, 14; Bakehouses, 9; Builders, 5; Tailors, 4; Saddlers, 2; Brickmakers, 2; Shoemakers, 2.

HITCHIN.—*Factories*: Breweries, Malt-making, Printing, Bootmaking, Lace-making, Engineers, Gas-making. *Workshops*: Dressmakers, Laundries, Bakeries, Furniture, Carpenters, Wheelwright, Malt-making.

ST. ALBANS.—There are 5 Factories and Workshops in this district which employ more than 40 persons. They have all adequate means of escape from fire.

WARE.—94 of the type usually met with in country districts.

WATFORD.—Domestic Workshops, 10; Bakehouses, 16; various, 35.

TABLE 31.

NUMBERS EMPLOYED IN HERTFORDSHIRE FACTORIES.

<i>Textile Factories.</i>		<i>Non-Textile Factories.</i>	
1904.	1901.	1904.	1901.
117	127	10,927	10,344

Persons employed in Non-Textile Factories (various trades), 1904.

Print, Bleach, and Dye Works	...	...	...	7
Gas	...	...	...	234
Electricity, Generation of	...	...	...	40
Indiarubber, etc.	...	...	...	143
Wood	...	...	...	952
Hides, Skins, and Fur	...	...	...	296
Clay, Stone, etc.	...	...	...	303
Metals, Founding and Conversion of	...	...	...	118
Machines, Appliances, Conveyances, Tools	...	...	...	683
Chemicals, etc.	...	...	...	425
Boxes, etc.	...	...	...	77
Furnitures, etc.	...	...	...	515
Food	...	...	...	785
Drink	...	...	...	1,014
Tobacco	...	...	...	3
Clothing, Making up of	...	...	...	1,348
Jewellery, etc.	...	...	...	244
Paper, Printing, Stationery, etc.	...	...	...	3,565
Explosives	...	...	...	4
Miscellaneous	...	...	...	171
				10,927

Age and Sex.

Children employed as half-timers	{	Males	...	1
		Females	...	—
Persons under 18 years of age employed as full-timers	{	Males	...	1,127
		Females	...	1,004
Persons above 18 years of age	{	Males	...	6,718
		Females	...	2,077
Total	{	Males	...	7,846
		Females	...	3,081
				= 10,927

CERTIFYING FACTORY SURGEONS IN HERTFORDSHIRE (see p. 125).

Certifying Surgeon's District.		Certifying Surgeon.
Name.	Definition of Area.	Name, Qualifications, and Address.
Baldock ...	Baldock Urban District. Part of Hitchin Rural District, viz.: the civil parishes of Caldicott, Newnham, Radwell, Bygrave, Clothall, Weston, Willian, Letchworth, and Norton. Part of Ashwell Rural District, viz.: the civil parishes of Ashwell and Hinxworth.	F. W. H. Langston Day, L.R.C.P., M.R.C.S., Baldock, Herts.
Barnet ...	Barnet Urban District. East Barnet Valley Urban District. Part of Barnet Rural District, viz.: the civil parish of Totteridge. (See also East Middlesex.)	T. Thyne, M.D., Wood Street, High Barnet, Herts.
Berkhampstead	Great Berkhampstead Urban District. Part of Berkhampstead Rural District, viz.: the civil parishes of Northchurch, Berkhampstead, Great Berkhampstead Rural, Nettleden, and Little Gaddesden.	R. L. Batterbury, M.D., Great Berkhampstead, Herts.
Bishop's Stortford.	Bishop Stortford Urban District. Sawbridgeworth Urban District. Hadham Rural District, except the civil parish of Braughing. (See also Stansted, Essex.)	C. Hartley, M.R.C.S., L.S.A., Bishop's Stortford, Herts.
Buntingford ...	Buntingford Rural District. Part of Ware Rural District, viz.: the civil parishes of Great and Little Munden and Standon. Part of Hadham Rural District, viz.: the civil parish of Braughing.	R. W. Fell, M.B., C.M., Buntingford, Herts.
Cheshunt ...	Cheshunt Urban District. (See also Waltham Abbey, Essex.)	J. D. Priest, M.R.C.S., L.S.A., Waltham Abbey, Essex.

Certifying Surgeon's District.		Certifying Surgeon.
Name.	Definition of Area.	Name, Qualifications, and Address.
Elstree	Part of Barnet Rural District, viz.: the civil parishes of Elstree, Shenley, and Ridge. Part of Watford Rural District, viz.: the civil parish of Aldenham.	F. P. Nunneley, M.D., Boreham House, Elstree, Herts.
Harpenden ...	Harpenden Urban District. Part of St. Albans Rural District, viz.: the civil parishes of Harpenden Rural and Wheathampstead.	J. Wilson, M.D., The Elms, Harpenden, Herts.
Hatfield ...	Hatfield Rural District.	C. R. Hall, L.R.C.P., M.R.C.S., Hatfield, Herts.
Hemel Hempstead.	Hemel Hempstead Municipal Borough. Hemel Hempstead Rural District. Part of Watford Rural District, viz.: the civil parish of Abbot's Langley.	Russell Steele, M.D., Hempstead House, Hemel Hempstead, Herts.
Hertford ...	Hertford Municipal Borough. Hertford Rural District, except the civil parishes of Walkern, Aston, and Datchworth.	J. B. Smith, M.B., C.M., 50, St. Andrew Street, Hertford.
Hitchin ...	Hitchin Urban District. Part of Hitchin Rural District, viz.: (a) so much as is west of the Great Northern Railway Company's Main Line; and (b) the civil parishes of Ickleford, Walsworth, and Great Wymondley.	O. H. Foster, M.A., M.B., M.R.C.S., Hitchin, Herts.
Hoddesdon ...	Hoddesdon Urban District. Part of Ware Rural District, viz.: the civil parishes of Hoddesdon Rural, Broxbourne, and Wormley.	A. J. Bisdee, M.R.C.S., L.S.A., Norris Lodge, Hoddesdon, Herts.
Rickmansworth...	Rickmansworth Urban District. Part of Watford Rural District, viz.: the civil parishes of Rickmansworth Rural, Chorley Wood, and Sarratt. (See also West Middlesex.)	M. Sharman, M.B., C.M., Rickmansworth, Herts.

Certifying Surgeon's District.		Certifying Surgeon.
Name.	Definition of Area.	Name, Qualifications, and Address.
Royston ...	<p>Royston Urban District. Part of Ashwell Rural District, viz.: the civil parishes of Kelshall, Therfield, Reed, Barkway, Barley, and Nut-hampstead. (See also Melbourn, Cambridge-shire.)</p>	C.W. Windsor, M.A., M.D., Royston, Herts.
St. Albans ...	<p>St. Albans Municipal Borough. Part of St. Albans Rural District, viz.: the civil parishes of St. Stephen, St. Michael Rural, Redbourn, Sandridge Rural, and St. Peter Rural.</p>	E. H. Lipscomb, B.A., M.B., B.C., St. Albans, Herts.
Stevenage ...	<p>Stevenage Urban District. Part of Hitchin Rural District, viz.: (a) the civil parishes of Graveley and Shephall; and (b) so much of the civil parishes of Little Wymondley and Knebworth as is east of the Great Northern Railway Company's Main Line. Part of Hertford Rural District, viz.: the civil parishes of Walkern and Aston.</p>	P. R. Tarbet, L.R.C.P., M.R.C.S., Stevenage, Herts.
Tring ...	<p>Tring Urban District. Part of Berkhamstead Rural District, viz.: the civil parishes of Tring Rural, Puttenham, Wigginton, and Aldbury.</p>	J. Brown, M.B., C.M., 23, High Street, Tring, Herts.
Ware ...	<p>Ware Urban District. Part of Ware Rural District, viz.: the civil parishes of Thundridge, Ware Rural, Widford, Gilston, Eastwick, Hunsdon, Stanstead Abbots, Stanstead St. Margarets, and Great Amwell.</p>	G. E. May, M.B., Woodleigh, Ware, Herts.
Watford ...	<p>Watford Urban District. Bushey Urban District. Part of Watford Rural District, viz.: the civil parish of Watford Rural.</p>	E. F. H. Hardenberg, M.B., M.R.C.S., 14A, High Street, Watford, Herts.
Welwyn ...	<p>Welwyn Rural District. Part of Hertford Rural District, viz.: the civil parish of Datchworth.</p>	B. W. Thomas, M.R.C.S., L.R.C.P., Welwyn, Herts.

BYELAWS, REGULATIONS AND ADOPTIVE ACTS.

TABLE 32.—BYELAWS, ETC., ADOPTED.

DISTRICTS.	New Streets and Buildings.	Common Lodging-houses.	Slaughterhouses.	Dairies, Cowsheds, and Milkshops.	Nuisances.	House Refuse.	Cleaning Footways and Pavements.	Good Rule and Government.	Public Health Acts Amendment Act, 1890, Part III.	Infectious Diseases Prevention Act, 1890.
Urban.										
Baldock	::	::	::	old	::	::	::	::	::	::
Barnet	x	x	x	x	x	::	x	::	x	::
Berkhampstead	::	::	::	x	::	::	::	::	::	::
Bishop's Stortford	Urg. need'd	x	x	x	::	::	::	::	::	::
Bushey	x	x	x	x	x	x	x	::	::	::
Cheshunt	::	::	::	x	::	::	::	::	::	::
East Barnet Valley	x	x	x	x	x	::	x	::	x	x
Harpenden	x	x	x	x	x	::	::	::	x	x
Hemel Hempstead... ..	::	x	x	x	x	x	::	x	::	::
Hertford	x	x	x	x	x	::	x	x	::	::
Hitchin	::	::	x	old	::	::	::	::	::	x
Hoddesdon	::	::	::	x	::	::	::	::	::	::
Rickmansworth	::	::	::	x	::	::	::	::	x	::
Royston	::	::	::	x	::	::	::	::	x	x
St. Albans	x	x	::	x	x	::	::	x	x	x
Sawbridgeworth	::	::	::	x	::	::	::	::	::	::
Stevenage	::	::	::	old	::	::	::	::	::	::
Tring	x	x	x	x	x	::	x	::	::	::
Ware	::	x	x	x	::	::	::	::	::	::
Watford	::	::	::	old	::	::	::	::	::	x
Rural.										
Ashwell	::	::	::	x	::	::	::	::	::	x
Barnet	::	::	::	old	::	::	::	::	::	::
Berkhampstead	x	x	x	x	x	x	x	::	::	::
Buntingford... ..	::	::	::	x	::	::	::	::	::	x
Hadham	::	::	::	x	::	::	::	::	::	::
Hatfield	::	x	x	old	::	::	::	::	::	::
Hemel Hempstead... ..	x	x	x	x	x	::	::	::	::	::
Hertford	::	::	::	x	::	::	::	::	::	::
Hitchin	x	::	::	x	::	::	::	::	::	::
St. Albans	x	::	x	x	x	::	::	::	::	x
Ware	::	::	::	x	::	::	::	::	::	::
Watford	x	x	x	x	x	x	x	::	::	::
Welwyn	x	::	::	x	x	::	::	::	::	::

URBAN.

Baldock.—No Byelaws have yet been adopted.

Barnet.—There are Byelaws for the regulation of the Recreation Grounds.

Berkhampstead.—The new Byelaws of the Local Government Board are now in force, but for what purposes is again not stated.

Bishop's Stortford.—The new Building Byelaws are now under consideration, owing to a letter from the Local Government Board May, 1908.

Bushey.—Also Ashpits and Tents, Vans, Sheds, etc. These Byelaws are a legacy from the Watford Rural Council, and have been revised.

Cheshunt.—The amended Byelaws are still under consideration by the Council.

East Barnet Valley.—There are also Byelaws with regard to offensive trades. Notice has been given to adopt practically the whole of "The Public Health (Amendment) Act, 1907."

Hertford.—There are also Byelaws with respect to Flushing of Water Closets, Cleansing of Earth Closets; also Regulations as to Water Supply and removal of filth through the streets.

Stevenage.—No mention yet made of any Dairies' Regulations or other Byelaws.

St. Albans.—Also Byelaws with regard to Clarence Park and Recreation Grounds. Amended Byelaws relative to New Streets and Buildings are now in course of preparation.

Watford.—Byelaws not specified. Special attention paid to Dairies, Cowsheds, and Milkshops.

RURAL.

Buntingford.—Building Byelaws required.

Hertford.—The Council have obtained Urban powers over the whole of the district. Previously they were in force in part of the district only. New Building Byelaws are at present awaiting the sanction of the Local Government Board.

Watford.—Also Cleansing of Ashpits, and Tents, Sheds, and Vans. Byelaws with respect to New Streets and Buildings recently revised and brought up to date.

TABLE 33.—FINANCIAL POSITION OF DISTRICTS.

URBAN DISTRICTS.	Union.	Assess- able Value.	Product of 1d. Rate.
		£	£ s. d.
1. Baldock	in Hitchin	8161	34 0 1
2. Barnet	„ Barnet	51532	219 14 4
3. Berkhamstead ..	„ Berkhamstead ..	36819	153 8 3
4. Bishop's Stortford ..	„ Bishop's Stortford ..	44441	185 3 5
5. Bushey	„ Watford	38584	160 15 4
6. Cheshunt	„ Edmonton	83317	347 3 1
7. East Barnet Valley..	„ Barnet	96195	400 16 3
8. Harpenden	„ St. Albans	37817	157 11 5
9. Hemel Hempstead..	„ Hemel Hempstead ..	57937	241 8 1
10. Hertford	„ Hertford	55266	230 5 6
11. Hitchin	„ Hitchin	55558	231 9 10
12. Hoddesdon	„ Ware	32648	136 8 0
13. Rickmansworth ..	„ Watford	25938	108 1 6
14. Royston	„ Royston	16725	69 13 9
15. St. Albans	„ St. Albans	90279	376 3 3
16. Sawbridgeworth ..	„ Bishop's Stortford ..	16134	67 4 6
17. Stevenage.. .. .	„ Hitchin	28001	116 13 5
18. Tring	„ Berkhamstead ..	22577	94 1 5
19. Ware	„ Ware	31487	131 3 11
20. Watford	„ Watford	166826	695 2 2
	Totals .. £	996242	£4156 7 6

TABLE 33 (continued).—FINANCIAL POSITION OF DISTRICTS.

RURAL DISTRICTS.	Union.	Assess- able Value.	Product of rd. Rate.		
		£	£	s.	d.
1. Ashwell	in Royston	5833	24	6	1
2. Barnet	„ Barnet	39573	164	16	1
3. Berkhamstead ..	„ Berkhamstead ..	45636	190	3	0
4. Buntingford	„ Buntingford	20824	86	15	4
5. Hadham	„ Bishop's Stortford ..	30577	127	8	1
6. Hatfield	„ Hatfield	69307	288	15	7
7. Hemel Hempstead	„ Hemel Hempstead ..	37418	155	18	2
8. Hertford	„ Hertford	43768	182	7	4
9. Hitchin	„ Hitchin	77893	324	11	1
10. St. Albans	„ St. Albans	115194	479	19	6
11. Ware	„ Ware	73269	305	5	9
12. Watford	„ Watford	156419	651	14	11
13. Welwyn	„ Welwyn	31010	129	4	9
	Rural Total .. £	746721	£3111	5	8
	Urban Total.. £	996242	£4156	7	6
	County Total £	1742963	£7267	13	2

SCHOOL HEALTH.

Through "The Education (Administration Provisions) Act, 1907," the present year marks the opening of a new era in Public Health work. Hertfordshire is fortunate in the possession of District Medical Officers of Health above the average and worthy, without exception, of confidence. Their Reports for 1907 repeat their opinion that in the cause both of health and of sound administration the work of school-health should not be divorced from that of the general public health. This opinion is strongly held, not only by the Board of Education, but also by the Local Government Board, whose Memorandum of December, 1907, as to Annual Reports of Medical Officers of Health included the following paragraph:—

"In reference to Schools it is desired to draw particular attention to
 "the Memorandum on Medical Inspection of Children in Elementary
 "Schools issued by the Board of Education in November of this year,
 "dealing with the new duties thrown upon Local Education Authorities
 "in this respect by Section 13 of the Education (Administrative
 "Provisions) Act, 1907. This Act does not confer powers in super-
 "session of those heretofore exercised generally in a public health sense
 "by Sanitary Authorities under previous enactments; rather it is supple-
 "mentary to existing Public Health Law in that it requires supervision
 "of the health of the individual child. The arrangements to this end
 "to be made by Local Education Authorities will no doubt vary with
 "the diverse circumstances of different districts, but it is anticipated
 "that in most districts the work will, in accordance with the advice of
 "the Board of Education, be carried out in conjunction with that of
 "the Medical Officer of Health, or at least under his supervision.
 "Where the Medical Officer of Health is also School Medical Officer
 "it may be convenient that the annual report which he is required to
 "make in the latter capacity should be issued together with his annual
 "report on the health of his district."

It is therefore a source of great satisfaction that the County Council should have avoided the pitfalls of the scheme for medical inspection of schools adopted in many other counties; and should have adopted a scheme on secure foundations, likely to be of permanent value to the County. It is most probable that the school-work which the District Medical Officer of Health is to undertake will increase rather than lessen the value of his work done for the sanitary authorities; and they will thereby be enabled, moreover, to retain the services of trusted officers, who might otherwise be seeking advancement elsewhere.

MIDWIVES.

*ANNUAL REPORT OF THE INSPECTOR OF MIDWIVES**For year ending December 31st, 1907.**Statement of Work done.*

During the year 1907 the total number of visits paid was 600: 397 of these were visits of inspection to the certified midwives registered in the County; 13 were to the Workhouse Infirmaries; 40 to the uncertified women, many of whom are still acting as midwives; 4 of these women had notices holding themselves out as "Certified Midwives," who, however, upon being reported to the Clerk of the County Council, all immediately complied with his request to remove the notice, no further action being necessary. The remaining 150 were calls upon doctors, monthly nurses holding the Central Midwives Board Certificate, and people connected with and interested in the various local nursing associations, or desirous of starting a nursing association.

The cyclometer on my bicycle registered 2,921 miles for the year. Thirty-six visits have been paid to the office of the County Medical Officer of Health at the College, Guy's Hospital. Four meetings of the District and Parish Councils' Committee have been attended, and a quarterly report submitted, viz., on March 22nd, June 17th, October 7th, and December 16th, 1907.

On May 10th, at a meeting in Bennington to consider the question of having a village nurse; on June 17th, at the annual meeting of the Hitchin Lying-in Charity; and on September 10th, at the annual meeting of the Ware Parish Nursing Association, I gave a short explanation of "The Midwives Act, 1902," and of the valuable influence of the well-educated trained midwife in reducing the rate of infant mortality. On May 17th a meeting of the Central Midwives' Board was attended by the County Medical Officer of Health and myself to give evidence against the midwife of Bennington, who had been cited to appear for breaking the rules with regard to cleanliness, appliances, and keeping the necessary records; her name was ordered to be struck off the Midwives Roll.

Two inquests have been attended, viz.: one at Bell Bar, Hatfield, on May 8th, in which the evidence showed the case had nothing to do with "The Midwives Act, 1902," and no blame was attached to the midwife; the other on August 30th at Ware, the midwife in question having failed to send for a doctor till too late to save the patient, and not having used the necessary disinfectants; she was suspended from

practice and reported to the Central Midwives' Board, but owing to "old age (71) and inability to comply with the rules" she voluntarily sent in her resignation, and therefore the case did not go before the Board. Three other midwives have requested that their names be removed from the roll, owing to "ill-health or declining years," their ages being 70, 73, and 74 respectively.

In the Workhouse Infirmaries during 1907 the total number of confinement cases was 66; 54 of these were illegitimate babies. The percentage of stillbirths is high in the Infirmaries, there being six stillborn infants out of 66 cases; and seven of the babies born alive have died during the year.

It is satisfactory to be able to report that there are now only a few Nursing Associations in the County who still have the rule that their nurse is only to attend "respectable married women"; therefore the other unfortunate girls can now be sure of skilled attention, and perhaps, coming under the influence of a good woman during this time, may be led to lead better lives in the future, and at all events taught to care for the baby. The number of illegitimate births attended by the midwives in the County for 1907 was 79.

At a meeting of the County Council on July 15th a special Midwives Sub-Committee, consisting of three members, was appointed for the purpose of investigating at once charges of malpractice, etc., suspending and reporting midwives to the Central Midwives Board. It has only been necessary for this Committee to meet once, viz. on September 2nd, to investigate the charges against Mrs. Lawrence, of Ware, whom they suspended from practice.

It must be noted that, under the Revised Rules of the Board, the County Council have a certain discretion allowed them under Rule 16 (*a*) and (*b*) of permitting midwives to perform the last offices. At the meeting on July 15th it was decided that "Registered Midwives practising in the County of Hertford be permitted to prepare for burial the bodies of lying-in women, stillborn children, or infants dying within ten days, provided that after laying out a dead body for burial they undergo adequate cleansing and disinfection."

Clerical Work.

The registers are all kept as before, and verified with the registers and records kept by the Clerk of the County Council periodically. The correspondence with regard to the midwives has much increased, and a fairly large portion of the Inspector's time is taken up with this, and the keeping of the registers, preparing reports, etc.

TABLE 34.—MIDWIVES AND THEIR WORK IN 1907.

District.	Popu- lation.	Total Births in County.		Births attended by Midwives.		Infant Deaths in 1st week.		Notifications.		Number of Midwives.		
		Legi- timate.	Illegi- timate.	(a) With Doctor	(b) As Mid- wife.	Total for County.	Total of Midwives' Cases.	Medi- cal Aid.	Still- births.	In Pri- vate Prac- tice.	In Nurs- ing Associ- ations	Total.
Urban.												
1. Baldock	1918	50	3	14	34	2	0	2	1	1	0	1
2. Barnet	9582	235	16	7	64	5	1	1	2	1	0	1
3. Berkhamstead ..	5529	98	3	...	...	3	...	...	...	...	...	None
4. Bishop's Stortford	7490	155	7	...	...	2	...	...	...	...	...	None
5. Bushey	5344	109		None in 1907		2	...	...	...	1 ¹	...	1
6. Cheshunt	13280	292	10	5	30	12	3	3	0	6 ²	0	6
7. East Barnet Valley	11800	226	6	3	64	3	0	1	1	1	0	1
8. Harpenden	6081	117	3	2	10	2	1	1	0	1	0	1
9. Hemel Hempstead	12384	291	10	13	84	4	0	3	4	3	3	6
10. Hertford	9600	213	12	4	184	4	3	13	9	1	2	3
11. Hitchin	11044	267	19	7	114	1	4	15	4	1	1	2
12. Hoddesdon	5150	105	3	3	46	2	0	6	1	1	1	2
13. Rickmansworth	6516	153	9	7	73	7	5	5	2	1	1	2
14. Royston	3716	80	2	21	56	...	1	4	2	2	1	3
15. St. Albans... ..	18250	340	15	45	200	3	5	31	4	3 ³	2	5
16. Sawbridgeworth	2350	50	...	...	...	2	...	...	...	...	...	None
17. Stevenage	4250	119	2	18	14	1	0	0	2	1	0	1
18. Tring	4349	87	3	1	7	3	0	1	0	1	0	1
19. Ware	5755	155	7	18	84	3	3	12	5	1 ⁴	2	3
20. Watford	38000	882	32	6	353	17	2	36	8	5 ⁵	0	5
Total for Urban Districts	182388	4186		174	1417	78	28	134	45	31	13	44
Rural.												
1. Ashwell	3953	74	2	9	43	1	1	3	2	1	2	3
2. Barnet	4737	112	0	7	37	4	2	2	1	2	0	2
3. Berkhamstead...	6034	117	1	10	3	8	0	0	1	2 ⁶	0	2
4. Buntingford ...	4840	104	10	3	32	1	0	1	0	4 ⁷	0	4
5. Hadham	5204	118	3	24	68	5	3	14	2	2	4 ⁸	6
6. Hatfield	7551	160	2	2	19	3	0	1	0	0	1	1
7. Hemel Hempstead	6012	119	3	0	22	3	0	1	1	2	2 ⁹	4
8. Hertford	7525	160	6	22	90	2	2	11	2	3	5 ¹⁰	8
9. Hitchin	12117	341	14	28	101	9	4	14	5	7 ¹¹	4	11
10. St. Albans	13865	395	16	19	108	10	4	19	7	3	3	6
11. Ware	11180	214	5	14	135	5	6	20	8	5	5	10
12. Watford	15137	272	3	11	19	2	0	2	2	0	2	2
13. Welwyn	2293	59		13	31	1	0	3	2	1	1	2
Total for Rural Districts	100448	2810		162	708	54	22	91	33	32	29	61
Total for County	282836	6496		336	2125	132	50	225	78	63	42	105

1 Only commenced December 20th, 1907.
 2 Four reside in Middlesex.
 3 One left the County, January, 1908.
 4 Retired September, 1907.
 5 One left the County July, 1907.
 6 One ceased practising 1908.

7 One died February, 1908.
 8 One resides outside County.
 9 One new Association started December, 1907.
 10 One new Association started December, 1907.
 11 One resides outside County and has ceased to practise, January, 1908.

NOTE.—Midwives constantly practise outside the district in which they reside, i.e., take both rural and urban cases; this fact must be considered in comparing any statistics of the Urban and Rural Districts with this table of the midwives' work.

Statistics of Midwives practising in the County.

In January, 1908, when the notifications of intention to practise were completed, the number of midwives on the County Register was 190, viz. :

- 80 registered as being in *bonâ-fide* practice prior to July, 1901 ;
- 78 as holding the certificate of the Obstetrical Society of London ;
- 28 the certificate of the Central Midwives Board Examination ;
- 2 certificates from Queen Charlotte's Hospital ;
- 2 certificates from Glasgow Maternity Hospital.

Of these 190 midwives,

- 100 are practising as such at the present time in Herts ;
- 6 are working in Workhouse Infirmaries ;
- 11 working as monthly nurses ;
- 12 have retired from practice ;
- 1 has been struck off the Midwives Roll ;
- 57 have left the County ;
- 3 are deceased.

Five of those now practising reside outside the County, but occasionally attend cases in Hertfordshire.

From January 1st to December 31st, 1907, the total number of cases attended by the midwives was 2,461 (see Table 34) ; the total number of births in the County was 6,496, showing that the midwives attended 38 per cent., or over one-third. Of the 2,461, 1,190 were attended by midwives in private practice without, and 152 under, medical supervision ; 935 were attended by midwives working for Nursing Associations without, and 184 under, medical supervision. Comparing these figures with those of 1906, it shows the medical men are continuing to employ the trained midwives of the Associations more than midwives in private practice, the number of cases having increased slightly on one side and showing a larger decrease on the other.

The total number of babies born alive was 2,418 (there being 35 cases of twins) ; of these 2,288 were still alive in January, 1908, 50 died before the tenth day (almost all were premature), and 80 after the midwife had ceased attending.

The total earnings of the midwives during 1907 gives them an average of 4s. 4¼d. per week each ; subtracting the earnings of the three women who do make a livelihood, the remainder earn on an average 3s. a week. These figures bring home most forcibly the fact that a woman cannot possibly make a livelihood out of midwifery alone in an agricultural district ; and it is only by dint of very hard work that a living is to be made in the small towns, as the fees in the Urban

Districts of this County only average 10s. 3 $\frac{3}{4}$ d. per case, and in the Rural Districts 7s. 8 $\frac{1}{4}$ d. per case; added to this, in many cases the fees are never paid, one midwife, for instance, having lost as much as £7 last year out of a possible £39.

Notifications received.

From January 1st to December 31st, 1907, the number of notifications of sending for medical help was 225, showing an increase of 67 on last year's figures, though the number of cases attended was 39 less; 71 of these were on account of the infant, 54 being due to prematurity and feebleness. Seven infants died without any registered medical practitioner having seen them; only in one case was there an inquest held. The number of notifications of stillbirth was 78, showing a regrettable increase of 14 on last year's figures; half of these were premature, and 17 were cases with the doctor engaged beforehand or summoned on account of illness of the mother. It must be remembered that it is only under the rules of the Central Midwives Board that any notification of stillbirths is recorded; therefore we are unable to compare these figures with the total number for the County. To alter this it is to be hoped the County Council will adopt "The Notification of Births Act, 1907." Then any child which is born after the expiration of the twenty-eighth week of pregnancy, whether alive or dead, must be notified within 36 hours of its birth. The adoption of this Act would be of great service to myself, as it would enable me to visit the midwife when I knew she was attending a case; and also to discover, and prevent after April 1st, 1910, those women whom I know are still practising as midwives without a certificate.

With regard to the payment of medical men called in by midwives under the rules of the Central Midwives Board, it is satisfactory to record that the County Council decided at the meeting held on October 28th to call the attention of the Boards of Guardians to the Memorandum of the Local Government Board, dated July 29th, 1907, issued to them upon this subject, and to ask them what steps they proposed to take in the matter. Almost all the Boards of Guardians in the County have decided to pay the medical practitioner, when called in by a midwife, if the patient is too poor to do so, and several have sent out notices to this effect to all the doctors and midwives in their Union.

Details of Inspection.

Taken as a whole, there is decided improvement in the midwives, both as to their own cleanliness and that of their dress and bag of appliances; also in the keeping of their case-books, and observing the rules of sending for medical aid and notifying the same. It is satisfactory to record that there are only 25 midwives who do not now keep

a written record of their patient's pulse and temperature during the 10 days they attend them, and it must be remembered there are 21 midwives who cannot read or write. Every midwife now has a bag with a washable lining; and their appliances are kept clean and in good condition. The "Instructions" issued by the County Council with the Revised Rules of the Central Midwives Board in June last have proved of great service to the untrained midwives, and there is decidedly more care shown by the women in their nursing of both mother and baby.

The Distribution and future provision and training of Midwives.

During 1907 four new District Nursing Associations employing a midwife have been formed, viz.: (1) Letchworth and the Garden City, (2) Bennington, (3) Markyate, Flamstead, and Trowley Bottom, and (4) Tewin, Datchworth, and Bramfield; whilst two Districts have had to add another midwife to their staff, bringing up the total number of midwives at work for Nursing Associations to 42.

There are still many places in the County without a certified midwife; and also several where after April 1st, 1910, one will be required to take the place of the uncertified woman who is now practising, and that of the *bonâ-fide* midwife who will retire owing to old age.

At the request of the Secretary of the Association for the Promotion of the Training and Supply of Midwives, who are anxious to obtain actual figures with regard to the supply of Midwives after April 1st, 1910, for England and Wales, I drew up a paper as to the probable requirements of this County.

The chief points are:—

- (1) There are 33 parishes where there is no certifying midwife practising.
- (2) There are 24 parishes where there is a midwife certified as being in *bonâ-fide* practice, whose place will have to be supplied on her death or retirement.
- (3) That in 7 of the 33 parishes (or combination of parishes), as far as is known, there is no uncertified woman practising, so that a village nurse-midwife is of a real necessity.
- (4) There are to my knowledge 30 women uncertified continuing to practise; of these, it is estimated, 9 will be required to take their place after April 1st, 1910.
- (5) Of the 50 midwives registered as being in *bonâ-fide* practice, it is estimated that 22 will be required to be replaced in event of retirement or death.

- (6) In many places where now the untrained midwife and district nurse are both practising, I fear when the midwife dies or retires the nurse will at times be quite unable to cope with both the sick nursing and midwifery.

I am glad to be able to state that the Countess Cowper and the Marchioness of Salisbury have taken up this serious question of the supply of midwives for the future; and at a preliminary meeting held on May 5th it was decided that the best means of meeting this need would be to start a County Nursing Association and a Training Home for Hertfordshire. By kind permission of the Marchioness of Salisbury the inaugural meeting has been arranged for some date during the autumn at 20, Arlington Street, W.

Infant Mortality.

The midwives are beginning to take a keen interest in this matter; even the untrained woman is trying to persuade the mothers, with the help of the Feeding Card issued by the County Council, which has lately been revised, to take greater care in the proper feeding and clothing of their babies. Though the midwives work almost entirely among the poorer classes, where the death-rate of infants is highest, yet the number of infants who died in their practice within the first week compares favourably with the totals for the County; these being 132 deaths in the first week out of 6,496 births; whilst the midwives' losses were 50 out of 2,418.

The difficulty there is in obtaining fresh milk in the country districts is one of which nearly every midwife complains. They instruct the mothers that condensed milk and patent foods are not good for healthy infants, and it is a matter for serious consideration that the one thing (fresh milk), of which not only babies but all little children should have a plentiful supply, it is almost impossible to obtain for either it is all sent to London or else it is used for making butter, and only the skim milk can be purchased.

The influence of well-trained midwives is forcibly illustrated by comparing the death-rate of infants under one year in two of the Urban Districts of the County: in one, where the midwives attended 245 out of 355 births, the death-rate per 1,000 births is 36.6; in the second, where no trained or certified midwife practises, the death-rate per 1,000 is 148.5. It would seem this indicates that if we could increase the number of well-educated trained midwives sufficiently to enable them to visit the babies periodically after they had ceased to attend the mother, and also advise them as to the care of their older children, this would meet in an agricultural county like our own the necessity of providing Health Visitors.

Hertingfordbury, June 1st, 1908.

NOTE BY THE COUNTY MEDICAL OFFICER.

The Lady Inspector's second report shows the value of her work, the importance of midwives in saving life and promoting elementary ideas of hygiene amongst the poorest classes, and the early justification of the methods adopted by the County Council for carrying out "The Midwives' Act, 1902."

This Act only came into operation in 1905; it comes into full operation in 1910. To prepare for this further development, it will be necessary to consider the question of supply and training of village-midwives.

It will be of great assistance if a County Nursing Association can be formed to take in hand the whole question of nursing, which touches the work of the Council at several points, and to found a training-home of appropriate stamp within the County. The County Council will be well advised, in view of its responsibilities under "The Midwives Act," to assist any such Association with full sympathy and, if necessary, with some financial grant towards the expenses of a training-home. With the growing importance of nursing as a profession, and its recognition in the community and, probably before long, its official establishment by the State, it will be of great advantage for the County authorities to have a single responsible body, representative of nursing, with which to deal and to which to refer all questions concerning the subject.

The importance of the midwives, it has been said, is shown in the saving of life. One of the most remarkable statistical facts in the Public Health of the County of recent years is the sudden fall last year in the number of deaths from premature birth, from 161 in 1906 to 107 in 1907, a saving of one-third. It is not safe to draw conclusions on a single year's results. But it is significant that a single midwife in a certain village boasts of three infants thus saved, one, weighing 3 lbs. at birth, being now a fine child over a year old. Nor is it true that such lives are least worth saving. Everyone knows persons, born prematurely, that have grown into men and women as strong, both in body and mind, as themselves.

But to those, the minority of mankind, who in fact, as well as in word, believe that prevention is better than cure and act accordingly, the value of midwives is of far greater importance as the missionaries of public health to the classes that need the message most. They are, in a Rural County, the true Health-Visitors, and, considering that no District in the County has yet been able to appoint a single Health-Visitor as such, and that the Local Government Board, as expressed

in their refusal to the Bushey Council to allow their adoption of "The Notification Act, 1907," lay this condition down as an indispensable preliminary to the adoption of the Act, it is to be hoped that the County Council will forthwith apply to the Board for sanction to adopt this Act, which will involve no expense of administration, and is shown by the Lady Inspector in her Report (see p. 141) to promise so much advantage to the community.

Finally, the last year has shown a determination on the part of the medical profession in the County to refuse to be exploited by the State under "The Midwives' Act" without fair compensation from the public funds. Under the Act midwives are compelled to call in the services of a medical practitioner in certain conditions of danger difficulty during confinement. The labourer is worthy of his hire, the doctor of his fee. The State calls him in, the State should pay. But "the State," unfortunately, is in one case represented by the County Council as Local Supervising Authority under the Midwives' Act, in the other by the patients themselves or the Guardians of the Poor. The Guardians are asked by the County Council to pay their debts, which the Council are unable by law to pay. The Guardians in most cases have consented; but in some cases only with a modified consent. "We will consider," they say, "each case on its merits." Its merits have in some cases actually been that the medical man has refused to go, until too late, to a case where experience shows that he will not recover his fee, and the patient has died. It is to be hoped that the Guardians will in all cases undertake to pay the fee and recover from the patient when possible. It is the province of the Guardians to relieve the poor; and of their relieving officer, not of the medical man, to collect the debts incurred in a general policy for the relief of the suffering poor in the greatest crisis of their lives.

CONCLUSION.

This concludes my Annual Report on the Public Health of Hertfordshire during the year 1907. The Report must close with an expression of the deepest loss sustained by the cause of Public Health, as by all other causes committed to your care, in the death of Sir John Evans, F.R.S., till recently your Chairman, and an earnest, wise, and sympathetic member of the Committee that deals with matters affecting the Public Health. The County will never know its debt to him. The officers, who know it well, can only record the loss they feel.

The year 1908 will be of the first importance in two respects. The significance of a County Nursing Association has been pointed out. The stone, well-laid, should become the head corner-stone of a building which, with the growth of women's work, is likely to be eventually of an importance almost equal to the whole of the existing work in the sphere of sanitary administration. Of equal importance is the system, now being inaugurated, of medical inspection of school-children at regular intervals throughout their lives; it is the first step in the efforts of the State to establish the physical health of the rising generation, with a view to the conditions essential to all the higher virtues and attainments, with a view to making the most of the national assets and giving to every child a fair start in the battle of life.

All engaged in the service of Public Health at such a time must feel proud to take part in this work of vital importance to the community. I hope to carry out the new duties confided in me in the present year in a manner satisfactory to the Council and not unworthy of the great responsibility which they involve.

I am, my Lords and Gentlemen,

Your obedient Servant,

FRANCIS FREMANTLE.

Guy's Hospital, June 6th, 1908.

TABLE 35.—CHIEF STATISTICS OF

URBAN AND RURAL

DISTRICTS, 1907.

DISTRICT.	POPULATION.			Acreage uncovered by Water, 1907.†	Inhabited Houses, 1901.‡	Pop. per House, 1901.
	By Estimate, 1907.	By Census, 1901.‡	By Census, 1891.‡			
Urban. SUMMARY	182,388	155,150	125,684	46,714	34,058	4.5
1. Baldock ...	1,918	2,057	2,301	263	504	4.1
2. *Barnet ...	9,582	8,359	6,437	1,508	1,578	5.3
3. Berkhamstead ¹ ...	5,529	5,140	4,574	1,088	1,053	4.8
4. Bishop's Stortford ...	7,490	7,143	6,595	3,272	1,629	4.3
5. Bushey ² ...	5,344	4,564	3,546	3,072	598	4.5
6. Cheshunt ...	13,280	12,292	9,620	8,403	2,480	4.9
7. East Barnet Valley ...	11,800	10,094	7,715	2,631	1,914	5.3
8. Harpenden ³ ...	6,081	4,725	3,603	1,631	1,024	4.6
9. Hemel Hempstead ⁴ ...	12,384	11,264	9,678	7,151	2,503	4.5
10. Hertford ...	9,600	9,322	9,023	1,098	1,970	4.6
11. Hitchin ...	11,044	10,072	8,860	2,617	2,198	4.6
12. Hoddesdon ...	5,150	4,711	3,975	1,547	1,044	4.5
13. Rickmansworth ⁵ ...	6,516	5,627	4,769	556	1,181	4.8
14. Royston ⁶ ...	3,716	3,517	3,318	1,003	805	4.3
15. St. Albans ...	18,250	16,019	12,898	989	3,394	4.7
16. †Sawbridgeworth ⁷ ...	2,350	2,085	2,165	2,653	461	4.5
17. Stevenage ...	4,250	3,957	3,309	4,544	898	4.4
18. Tring ...	4,349	4,349	4,525	4,364	1,040	4.1
19. Ware ...	5,755	5,573	5,256	612	1,188	4.7
20. Watford ...	38,000	29,327	17,063	1,613	6,196	4.7
Rural. SUMMARY	100,448	103,273	100,903	356,142	20,974	4.9
1. Ashwell ...	3,953	3,953	4,680	22,039	969	4
2. §Barnet ...	4,737	4,154	3,945	10,791	819	5
3. Berkhamstead ...	6,034	5,984	6,193	18,270	1,350	4.4
4. Buntingford ...	4,840	5,020	5,660	28,430	1,204	4.1
5. Hadham ...	5,204	5,382	8,014	25,493	1,310	4.1
6. Hatfield ...	7,551	7,551	6,963	23,386	1,576	4.7
7. Hemel Hempstead ...	6,012	6,012	6,127	19,965	1,380	4.3
8. Hertford ...	7,525	7,715	8,170	34,176	1,682	4.4
9. Hitchin ...	12,117||	12,663	13,125	59,321	2,892	4.4
10. St. Albans ...	13,865	12,264	10,371	38,668	2,573	4.3
11. Ware ...	11,180	10,890	10,392	33,721	2,276	4.7
12. Watford ...	15,137	14,418	17,082	31,415	2,458	5.8
13. Welwyn ...	2,293	2,265	2,346	6,566	485	4.6

BIRTH-RATE.			NETT DEATH-RATE.			INFANT-MORTALITY.			EPIDEMIC DEATH-RATE.		
1907.	1906.	8 years.	1907.	1906.	8 years.	1907.	1906.	8 years.	1907.	1906.	8 years.
23.0	23.8	23.9	11.8	11.9	12.2	78.1	109.4	89.9	.7	1.1	.9
27.6	23.2	23.6	21.8	13.4	16.1	94	155	45	1.1	1.5	1.1
26.1	26.4	24.8	9.9	11.0	12.4	67	172	109	.1	1.8	.9
18.2	15.3	19.5	12.6	11.1	12.4	148	130	103	.7	.5	.7
22.3	26.3	22.6	13.4	15.0	14.0	95	122.4	101	.3	.5	.8
20.3	19.9	...	10.2	9.4	...	73	77	...	.2	.4	...
22.7	26.6	26.3	10.9	10.7	11.6	89	98.3	102.8	.3	1.1	1.2
19.6	20.7	21.9	11.5	9.4	9.5	103.4	104.6	92	.4	1.2	.7
19.7	18.2	19.7	8.7	11.5	10.7	58	158	85.5	.7	1.1	.7
24.2	23.8	25.4	12.6	12.7	13.4	69	103	96	.4	1.3	.7
23.4	24.7	23.8	14.1	15.4	14.8	93.3	122.3	110.8	1.1	1.3	.9
25.8	24.9	23.6	12.5	13.3	13.8	76	99	106	.6	.8	.9
21.0	23.4	23.9	12.2	10.2	12.7	101.8	58.8	114.6	.6	.4	.9
24.8	26.8	26.4	10.7	11.1	11.2	86.4	69.0	92	.2	1.5	.9
22.0	19.9	21.2	11.5	13.2	12.2	73	69	90	.5	.3	.5
19.4	20.1	21.9	10.0	10.6	11.6	36.6	77	82.9	.3	.5	.8
21.2	18.8	24.0	14.0	10.2	12.2	80.0	204.5	100.5	.9	1.7	.7
28.8	23.3	27.4	13.3	15.5	12.8	66.1	133.3	84.7	.2	.7	.5
20.6	21.1	24.2	13.5	15.5	13.3	77	129	91	2.0	.2	1.1
28.1	26.7	30.3	13.5	15.7	16.1	92.6	196.0	114.3	.5	2.0	1.2
24.1	26.2	27.7	11.3	10.3	11.7	72.2	96.4	99.2	1.4	1.4	1.4
23.0	22.7	22.6	12.3	12.9	12.6	83.1	107.7	92.6	.5	.9	.7
19.2	19.2	20.2	15.4	15.4	16.4	39	118	99.4	1.3	.8	.5
23.6	20.9	23.8	11.1	11	11.0	53	113	90.5	.6	1.7	1.0
19.5	17.8	20.8	14.0	11.5	12.0	135	102	113.3	.1	.3	.7
23.5	22.0	22.1	11.4	14.0	13.9	34.1	140.2	81.4	.2	.2	.5
23.2	24.1	22.9	14.9	15.7	14.3	90.9	71.4	79.0	.6	.4	.7
21.4	26.4	25.5	12.3	11.9	12.4	129	105	100.4	.3	1.1	1.0
20.2	21.7	21.4	10.7	12.6	12.5	106	61	107	.8	.3	.7
22.0	22.1	22.0	11.1	13.2	12.4	42.1	101.8	77.0	.4	.7	.6
29.2||	25.2	24.5	14.9||	14.7	13.0	87||	127	92	.4||	1.2	.9
29.8	32.0	28.3	10.7	14.7	12.7	85.1	132.4	105.3	.5	1.8	.9
19.5	22.8	21.1	12.1	12.0	11.4	86.7	94.5	70.2	.4	.8	.6
18.1	15.2	16.7	10.4	9.4	9.5	80	87	97	.4	.7	.5
25.7	23.1	25.2	13.9	14.4	12.7	67	113	98	.0	1.3	.8

DEATH-RATE FROM DIARRHŒA.			DEATH-RATE FROM PHTHISIS.			DEATH-RATE FROM CANCER.			SENILE DEATHS. PERCENTAGE OVER 65.		
1907.	1906.	8 years.	1907.	1906.	8 years.	1906.	1907.	8 years.	1907.	1906.	7 years.
.1	.6	.4	.8	.8	.9	1.1	.9	1.0	37	36.1	36.5
.0	1.0	.6	1.1	.5	.9	2.6	.5	1.1	55	38.5	42.9
.0	1.3	.5	.8	.4	.9	.8	.5	.8	36	26.9	29.3
.2	.4	.3	1.3	1.1	1.1	.5	.4	.6	37.1	40.6	40.5
.1	.4	.5	.7	1.3	.9	2.0	1.9	1.1	41.6	32.1	38.9
.0	.2	...	.6	.2	...	1.0	.6	...	43.6	36.7	...
.2	.8	.6	1.0	.5	.6	1.0	.5	.8	31.0	31.7	28.1
.3	.7	.3	1.0	.4	.6	.8	.8	.7	30.1	31.2	32.7
.0	1.1	.6	.3	.7	.9	.8	1.3	.8	43.4	42.2	37.1
.0	.6	.2	1.0	.6	1.0	1.5	.8	1.0	32.5	33.1	36.1
.1	.9	.4	1.3	.9	.9	1.3	1.3	1.2	36.6	29.7	32.6
.4	.4	.3	.8	.7	.9	1.6	1.1	1.0	41.0	45.5	38.9
.4	.2	.4	.2	.9	.9	1.4	.4	.9	44.8	30.8	34.9
.0	.2	.2	.6	1.1	1.0	.3	.6	.5	37.1	31.9	30.6
.0	.3	.2	1.1	.8	.9	2.2	1.1	1.5	48.9	42.9	44.7
.0	.3	.4	.9	1.1	1.0	1.0	.9	1.1	40.2	45.8	38.9
.0	.4	.1	.9	.0	.9	2.6	1.3	1.5	42.4	37.5	42.8
.0	.2	.1	.2	1.4	1.0	1.4	1.9	1.0	42.9	44.3	40.8
.2	.2	.5	.5	.2	.4	2.0	.7	1.2	42.4	45.6	43.5
.5	.5	.6	1.2	.7	1.5	1.4	1.6	.9	28.6	24.4	32.7
.2	.9	.5	.7	.8	.9	1.0	.7	.7	29.9	30.2	27.5
.1	.5	.3	.8	.8	.9	.9	1.0	.9	45	41.3	41.9
.3	.3	.1	.3	.6	.7	1.5	1.8	1.3	53.2	60.6	53.6
.0	.2	.3	.6	.9	1.4	1.2	1.3	.8	43.4	29.9	30.1
.0	.2	.4	.3	1.0	.7	1.5	.7	.9	45.9	42.0	41.3
.0	.0	.2	.4	.8	.8	1.2	2.2	1.2	67.7	47.1	54.1
.2	.0	.3	.2	.4	.6	1.2	1.3	.9	62.8	47.6	51.1
.1	.3	.4	1.5	1.1	1.1	.8	.8	.9	30.2	33.3	35.5
.2	.2	.3	.8	.2	.7	1.2	.8	.9	40	44.7	34.9
.1	.7	.2	.9	1.2	.8	.7	1.4	1.0	52.4	40.0	46.1
.1||	.9	.5	.9||	.7	.6	1.0||	.1	.8	43.6||	47.8	44.4
.3	1.2	.5	.5	.9	1.0	.7	.8	.6	35.0	35.6	33.7
.1	.2	.2	1.2	.9	.9	1.3	.6	.9	43.4	38.1	42.2
.0	.1	.1	.8	.6	.7	.7	.3	.7	46.8	33.1	38.4
.0	.9	.5	1.0	1.8	1.1	1.0	.0	1.0	34.4	36.4	38.8

¹ Constituted out of Rural District of Berkhamstead, 1898; ² out of Rural District of Watford, 1906; ³ out of Rural District of St. Albans, 1898; ⁴ out of Rural District of Hemel Hempstead, 1898; ⁵ out of Rural District of Watford, 1898; ⁶ out of Rural District of Ashwell, 1897; ⁷ out of Rural District of Hadham, 1901.
 * Including, § Excluding, Parish of Arkley, added to Barnet Urban from Barnet Rural, 1905.
 † The columns headed 8 years give only the average of the last 7 years in the case of Sawbridgeworth, which was constituted a separate district in 1901.
 ‡ According to the Census Report for Hertfordshire, 1901; Eyre & Spottiswoode, E. Harding Street, E.C.; 1.1.
 § Includes Letchworth (First Garden City), with population in 1907 at 5,000. This, added to official estimate of 12,117, less 450 on the estate in 1901, gives revised estimate of 16,667. Rates will then be $\frac{2}{3}$ of those here given.

